



YENEPOYA

(DEEMED TO BE UNIVERSITY)

Recognized under Sec 3(A) of the UGC Act 1956

Accredited by NAAC with 'A' Grade

YENEPOYA (DEEMED TO BE UNIVERSITY)

Deralakatte, Mangaluru -575018

REGULATIONS AND CURRICULUM GOVERNING UNDERGRADUATE PROGRAM (MBBS) IN MEDICINE AND SURGERY

(REVISED CURRICULUM – AMENDED UP TO 2019)

ATTESTED

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YENEPOYA

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NOTIFICATION – 37-ACM/09/2019 dtd. 31.12.2019

Sub: Implementation of Competency Based Medical Education (CBME)
for MBBS curriculum

Ref: Resolution of the Academic council at its 37th meeting held on
13.12.2019, vide agenda-23

The Academic Council at its 37th meeting and subsequently 48th meeting of Board of Management held on 13.12.2019 have accepted the proposal for implementation of Competency Based Medical Education (CBME) for MBBS curriculum as per the MCI norms with effect from the academic year 2019 onwards.

To,

The Principal, Yenepoya Medical College

Keerthi

REGISTRAR

Registrar

YENEPOYA

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**BOARD OF GOVERNORS IN SUPER-SESSION
OF MEDICAL COUNCIL OF INDIA**

AMENDMENT NOTIFICATION

New Delhi, the 4th November, 2019

No. MCI-34(41)/2019-Med./161726.—In exercise of the powers conferred by Section 33 of the Indian Medical Council Act, 1956 (102 of 1956), the Board of Governors in super-session of Medical Council of India with the previous sanction of the Central Government, hereby makes the following Regulations to further amend the “Regulations on Graduate Medical Education, 1997”, namely: -

1. (i) These Regulations may be called the “Regulations on Graduate Medical Education (Amendment), 2019.
- (ii) They shall come into force from the date of their publication in the Official Gazette.
2. The following shall be added as clause 1A to the Regulations on Graduate Medical Education, 1997:-
 - (i) The Regulations of Graduate Medical Education, 1997 from clause 2 to 14 contained in Chapters I to V and the Appendices and Schedules appended therein shall be included as Part I of the Regulation. These provisions shall be the governing Regulations with respect to batches admitted in MBBS courses until academic year 2018-19.
 - (ii) Part II containing the following Chapters shall be added to the Regulations on Graduate Medical Education, 1997 that shall be the governing Regulations with respect to batches admitted in MBBS course from academic year 2019-20 onwards.
3. Following shall be added as Part II of the Regulations on Graduate Medical Education, 1997:-

Part II

For MBBS course starting from academic year 2019-20 onwards

THE REGULATIONS ON GRADUATE MEDICAL EDUCATION, 1997

PART II

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The provisions contained in Part II of these Regulations shall apply to the MBBS course starting from academic year 2019-20 onwards

2. Indian Medical Graduate Training Programme

The undergraduate medical education programme is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training programme are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) Recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession to fulfill his/her social obligations towards realization of this goal.
- (b) Learn every aspect of National policies on health and devote her/him to its practical implementation.
- (c) Achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) Become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

- (1) In consonance with the national goals each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:
 - (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
 - (b) be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.
 - (c) appreciate rationale for different therapeutic modalities; be familiar with the administration of “essential medicines” and their common adverse effects.

- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
 - (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
 - (f) be familiar with the basic factors which are essential for the implementation of the National Health Programmes including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH)
 - (ii) Sanitation and water supply
 - (iii) Prevention and control of communicable and non-communicable diseases
 - (iv) Immunization
 - (v) Health Education
 - (vi) Indian Public Health Standards (IPHS), at various levels of service delivery
 - (vii) Bio-medical waste disposal
 - (viii) Organizational and/or institutional arrangements.
 - (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, hospital management, inventory skills and counseling.
 - (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
 - (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
 - (j) be competent to work in a variety of health care settings.
 - (k) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.
- (2) All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate.

2.3. Goals and Roles for the Learner

In order to fulfil the goal of the IMG training programme, the medical graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioural and social perspective.

- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3. Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.
- 3.1.4. Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7. Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8. Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9. Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10. Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frame works.
- 3.1.11. Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12. Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - (i) Disease prevention,
 - (ii) Health promotion and cure,
 - (iii) Pain and distress alleviation, and
 - (iv) Rehabilitation.
- 3.1.13. Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14. Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15. Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.
- 3.2. ***Leader and member of the health care team and system***
 - 3.2.1. Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
 - 3.2.2. Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
 - 3.2.3. Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
 - 3.2.4. Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.

- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancers, in collaboration with other members of the health care team.
- 3.3. ***Communicator with patients, families, colleagues and community***
- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.
- 3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.
- 3.4. ***Lifelong learner committed to continuous improvement of skills and knowledge***
- 3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.
- 3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.
- 3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.
- 3.4.4. Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.
- 3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.
- 3.5. ***Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession***
- 3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.
- 3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.
- 3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.
- 3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.
- 3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

4. Broad Outline on training format

- 4.1. In order to ensure that training is in alignment with the goals and competencies listed in sub-clause 2 and 3 above:
 - 4.1.1 There shall be a "Foundation Course" to orient medical learners to MBBS programme, and provide them with requisite knowledge, communication (including electronic), technical and language skills.
 - 4.1.2 The curricular contents shall be vertically and horizontally aligned and integrated to the maximum extent possible in order to enhance learner's interest and eliminate redundancy and overlap.
 - 4.1.3. Teaching-learning methods shall be learner centric and shall predominantly include small group learning, interactive teaching methods and case based learning.
 - 4.1.4. Clinical training shall emphasize early clinical exposure, skill acquisition, certification in essential skills; community/primary/secondary care-based learning experiences and emergencies.
 - 4.1.5. Training shall primarily focus on preventive and community based approaches to health and disease, with specific emphasis on national health priorities such as family welfare, communicable and non-communicable diseases including cancer, epidemics and disaster management.

- 4.1.6. Acquisition and certification of skills shall be through experiences in patient care, diagnostic and skill laboratories.
- 4.1.7. The development of ethical values and overall professional growth as integral part of curriculum shall be emphasized through a structured longitudinal and dedicated programme on professional development including attitude, ethics and communication.
- 4.1.8. Progress of the medical learner shall be documented through structured periodic assessment that includes formative and summative assessments. Logs of skill-based training shall be also maintained.
- 4.2. Appropriate Faculty Development Programmes shall be conducted regularly by institutions to facilitate medical teachers at all levels to continuously update their professional and teaching skills, and align their teaching skills to curricular objectives.

CHAPTER II

ADMISSION TO INDIAN MEDICAL GRADUATE PROGRAMME: NATIONAL ELIGIBILITY-CUM-ENTRANCE TEST AND COMMON COUNSELLING

5. Admission to the Indian Medical Graduate Programme

The provision as contained in Part I – Chapter II shall be the governing provisions.

CHAPTER III

MIGRATION

6. Migration

The provision as contained in Part I - Chapter II Clause 6 shall be the governing provisions.

CHAPTER IV

PHASE WISE TRAINING AND TIME DISTRIBUTION FOR PROFESSIONAL DEVELOPMENT

The Competency based Undergraduate Curriculum and Attitude, Ethics and Communication (AETCOM) course, as published by the Medical Council of India and also made available on the Council's website, shall be the curriculum for the batches admitted in MBBS from the academic year 2019-20 onwards.

Provided that in respect of batches admitted prior to the academic year 2019-20, the governing provisions shall remain as contained in the Part I of these Regulations.

7. Training period and time distribution:

- 7.1. Every learner shall undergo a period of certified study extending over 4 ½ academic years, divided into nine semesters from the date of commencement of course to the date of completion of examination which shall be followed by one year of compulsory rotating internship.
- 7.2. Each academic year will have at least 240 teaching days with a minimum of eight hours of working on each day including one hour as lunch break.
- 7.3. Teaching and learning shall be aligned and integrated across specialties both vertically and horizontally for better learner comprehension. Learner centered learning methods should include problem oriented learning, case studies, community oriented learning, self- directed and experiential learning.
- 7.4. The period of 4 ½ years is divided as follows:
 - 7.4.1 Pre-Clinical Phase [(Phase I) - First Professional phase of 13 months preceded by Foundation Course of one month]: will consist of preclinical subjects – Human Anatomy, Physiology, Biochemistry, Introduction to Community Medicine, Humanities, Professional development including Attitude, Ethics & Communication (AETCOM) module and early clinical exposure, ensuring both horizontal and vertical integration.
 - 7.4.2 Para-clinical phase [(Phase II) - Second Professional (12 months)]: will consist of Para-clinical subjects namely Pathology, Pharmacology, Microbiology, Community Medicine, Forensic Medicine and Toxicology, Professional development including Attitude, Ethics & Communication (AETCOM) module and introduction to clinical subjects ensuring both horizontal and vertical integration.

The clinical exposure to learners will be in the form of learner-doctor method of clinical training in all phases. The emphasis will be on primary, preventive and comprehensive health care. A part of training during clinical postings should take place at the *primary level* of health care. It is desirable to provide learning experiences in secondary health care, wherever possible. This will involve:

- (a) Experience in recognizing and managing common problems seen in outpatient, inpatient and emergency settings,
- (b) Involvement in patient care as a team member,
- (c) Involvement in patient management and performance of basic procedures.

7.4.3 Clinical Phase – [(Phase III) Third Professional (28 months)]

- (a) Part I (13 months) - The clinical subjects include General Medicine, General Surgery, Obstetrics & Gynaecology, Pediatrics, Orthopaedics, Dermatology, Otorhinolaryngology, Ophthalmology, Community Medicine, Forensic Medicine and Toxicology, Psychiatry, Respiratory Medicine, Radiodiagnosis & Radiotherapy and Anaesthesiology & Professional development including AETCOM module.
- (b) Electives (2 months) - To provide learners with opportunity for diverse learning experiences, to do research/community projects that will stimulate enquiry, self directed experimental learning and lateral thinking [9.3].
- (c) Part II (13 months) - Clinical subjects include:
 - i. Medicine and allied specialties (General Medicine, Psychiatry, Dermatology Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis)
 - ii. Surgery and allied specialties (General Surgery, Orthopedics [including trauma]), Dentistry, Physical Medicine and rehabilitation, Anaesthesiology and Radiodiagnosis)
 - iii. Obstetrics and Gynecology (including Family Welfare)
 - iv. Pediatrics
 - v. AETCOM module

7.5 Didactic lectures shall not exceed one third of the schedule; two third of the schedule shall include interactive sessions, practicals, clinical or/and group discussions. The learning process should include clinical experiences, problem oriented approach, case studies and community health care activities.

The admission shall be made strictly in accordance with the statutory notified time schedule towards the same.

7.6 Universities shall organize admission timing and admission process in such a way that teaching in the first Professional year commences with induction through the Foundation Course by the 1st of August of each year.

(i) Supplementary examinations shall not be conducted later than 90 days from the date of declaration of the results of the main examination, so that the learners who pass can join the main batch for progression and the remainder would appear for the examination in the subsequent year.

(ii) A learner shall not be entitled to graduate later than ten (10) years of her/his joining the first MBBS course.

7.7 No more than four attempts shall be allowed for a candidate to pass the first Professional examination. The total period for successful completion of first Professional course shall not exceed four (4) years. Partial attendance of examination in any subject shall be counted as an attempt.

7.8 A learner, who fails in the second Professional examination, shall not be allowed to appear in third Professional Part I examination unless she/he passes all subjects of second Professional examination.

7.9 Passing in third Professional (Part I) examination is not compulsory before starting part II training; however, passing of third Professional (Part I) is compulsory for being eligible for third Professional (Part II) examination.

7.10 During para-clinical and clinical phases, including prescribed 2 months of electives, clinical postings of three hours duration daily as specified in Tables 5, 6, 7 and 8 would apply for various departments.

8. Phase distribution and timing of examination

8.1 Time distribution of the MBBS programme is given in Table 1.

- 8.2 Distribution of subjects by Professional Phase-wise is given in Table 2.
- 8.3 Minimum teaching hours prescribed in various disciplines are as under Tables 3-7.
- 8.4 Distribution of clinical postings is given in Table 8.
- 8.5 Duration of clinical postings will be:
- 8.5.1 Second Professional : 36 weeks of clinical posting (Three hours per day - five days per week : Total 540 hours)
- 8.5.2 Third Professional part I: 42 weeks of clinical posting (Three hours per day - six days per week : Total 756 hours)
- 8.5.3 Third Professional part II: 44 weeks of clinical posting (Three hours per day - six days per week : Total 792 hours)
- 8.6 Time allotted excludes time reserved for internal / University examinations, and vacation.
- 8.7 Second professional clinical postings shall commence before / after declaration of results of the first professional phase examinations, as decided by the institution/ University. Third Professional parts I and part II clinical postings shall start no later than two weeks after the completion of the previous professional examination.
- 8.8 25% of allotted time of third Professional shall be utilized for integrated learning with pre- and para- clinical subjects. This will be included in the assessment of clinical subjects.

Table 1: Time distribution of MBBS Programme & Examination Schedule

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
							Foundation Course	I MBBS			
I MBBS								Exam I MBBS	II MBBS		
II MBBS								Exam II MBBS	III MBBS		
III MBBS Part I									Exam III MBBS Part I	Electives & Skills	
III MBBS Part II											
Exam III MBBS Part II	Internship										
Internship											

- One month is provided at the end of every professional year for completion of examination and declaration of results.

Table 2: Distribution of subjects by Professional Phase

Phase & year of MBBS training	Subjects & New Teaching Elements	Duration#	University examination
First Professional MBBS	<ul style="list-style-type: none"> • Foundation Course (1 month) • Human Anatomy, Physiology & Biochemistry, introduction to Community Medicine, Humanities • Early Clinical Exposure 	1 + 13 months	I Professional

	<ul style="list-style-type: none"> Attitude, Ethics, and Communication Module (AETCOM) 		
Second Professional MBBS	<ul style="list-style-type: none"> Pathology, Microbiology, Pharmacology, Forensic Medicine and Toxicology, Introduction to clinical subjects including Community Medicine Clinical postings Attitude, Ethics & Communication Module (AETCOM) 	12 months	II Professional
Third Professional MBBS Part I	<ul style="list-style-type: none"> General Medicine, General Surgery, Obstetrics & Gynecology, Pediatrics, Orthopedics, Dermatology, Psychiatry, Otorhinolaryngology, Ophthalmology, Community Medicine, Forensic Medicine and Toxicology, Respiratory medicine, Radiodiagnosis & Radiotherapy, Anesthesiology Clinical subjects /postings Attitude, Ethics & Communication Module (AETCOM) 	13 months	III Professional (Part I)
Electives	<ul style="list-style-type: none"> Electives, Skills and assessment* 	2 months	
Third Professional MBBS Part II	<ul style="list-style-type: none"> General Medicine, Pediatrics, General Surgery, Orthopedics, Obstetrics and Gynecology including Family welfare and allied specialties Clinical postings/subjects Attitude, Ethics & Communication Module (AETCOM) 	13 months	III Professional (Part II)

*Assessment of electives shall be included in Internal Assessment.

Table 3: Foundation Course (one month)

Subjects/ Contents	Teaching hours	Self Directed Learning (hours)	Total hours
Orientation ¹	30	0	30
Skills Module ²	35	0	35
Field visit to Community Health Center	8	0	8
Introduction to Professional Development & AETCOM module	-	-	40
Sports and extracurricular activities	22	0	22
Enhancement of language/ computer skills ³	40	0	40
	-	-	175

1. Orientation course will be completed as single block in the first week and will contain elements outlined in 9.1.
2. Skills modules will contain elements outlined in 9.1.
3. Based on perceived need of learners, one may choose language enhancement (English or local spoken or both) and computer skills. This should be provided longitudinally through the duration of the Foundation Course.

Teaching of Foundation Course will be organized by pre-clinical departments.

Table 4: First Professional teaching hours

Subjects	Lectures (hours)	Small Group Teaching/ Tutorials/ Integrated learning/ Practical (hours)	Self directed learning (hours)	Total (hours)
Human Anatomy	220	415	40	675
Physiology*	160	310	25	495
Biochemistry	80	150	20	250
Early Clinical Exposure**	90	-	0	90
Community Medicine	20	27	5	52
Attitude, Ethics & Communication Module (AETCOM) ***	-	26	8	34
Sports and extracurricular activities	-	-	-	60
Formative assessment and Term examinations	-	-	-	80
Total	-	-	-	1736

* including Molecular Biology.

** Early clinical exposure hours to be divided equally in all three subjects.

*** AETCOM module shall be a longitudinal programme.

Table 5: Second Professional teaching hours

Subjects	Lectures (hours)	Small group learning (Tutorials / Seminars) /Integrated learning (hours)	Clinical Postings (hours) *	Self - Directed Learning (hours)	Total (hours)
Pathology	80	138	-	12	230
Pharmacology	80	138	-	12	230
Microbiology	70	110	-	10	190
Community Medicine	20	30	-	10	60
Forensic Medicine and Toxicology	15	30	-	5	50
Clinical Subjects	75**	-	540***	-	615
Attitude, Ethics & Communication Module (AETCOM)	-	29	-	8	37
Sports and extracurricular activities	-	-	-	28	28
Total	-	-	-	-	1440

* At least 3 hours of clinical instruction each week must be allotted to training in clinical and procedural skill laboratories. Hours may be distributed weekly or as a block in each posting based on institutional logistics.

** 25 hours each for Medicine, Surgery and Gynecology & Obstetrics.

***The clinical postings in the second professional shall be 15 hours per week (3 hrs per day from Monday to Friday).

Table 6: Third Professional Part I teaching hours

Subjects	Teaching Hours	Tutorials/ Seminars /Integrated Teaching (hours)	Self- Directed Learning (hours)	Total (hours)
General Medicine	25	35	5	65
General Surgery	25	35	5	65
Obstetrics and Gynecology	25	35	5	65
Pediatrics	20	30	5	55
Orthopaedics	15	20	5	40
Forensic Medicine and Toxicology	25	45	5	75
Community Medicine	40	60	5	105
Dermatology	20	5	5	30
Psychiatry	25	10	5	40
Respiratory Medicine	10	8	2	20
Otorhinolaryngology	25	40	5	70
Ophthalmology	30	60	10	100
Radiodiagnosis and Radiotherapy	10	8	2	20
Anesthesiology	8	10	2	20
Clinical Postings*	-	-	-	756
Attitude, Ethics & Communication Module (AETCOM)		19	06	25
Total	303	401	66	1551

* The clinical postings in the third professional part I shall be 18 hours per week (3 hrs per day from Monday to Saturday).

Table 7: Third Professional Part II teaching hours

Subjects	Teaching Hours	Tutorials/Seminars / Integrated Teaching (hours)	Self - Directed Learning (hours)	Total* (hours)
General Medicine	70	125	15	210
General Surgery	70	125	15	210
Obstetrics and Gynecology	70	125	15	210
Pediatrics	20	35	10	65
Orthopaedics	20	25	5	50
Clinical Postings**				792
Attitude, Ethics & Communication Module (AETCOM)***	28		16	43
Electives				200
Total	250	435	60	1780

* 25% of allotted time of third professional shall be utilized for integrated learning with pre- and para- clinical subjects and shall be assessed during the clinical subjects examination. This allotted time will be utilized as integrated teaching by para-clinical subjects with clinical subjects (as Clinical Pathology, Clinical Pharmacology and Clinical Microbiology).

** The clinical postings in the third professional part II shall be 18 hours per week (3 hrs per day from Monday to Saturday).

*** Hours from clinical postings can also be used for AETCOM modules.

Table 8: Clinical postings

Subjects	Period of training in weeks			Total weeks
	II MBBS	III MBBS Part I	III MBBS Part II	
Electives	-	-	8* (4 regular clinical posting)	4
General Medicine ¹	4	4	8+4	20
General Surgery	4	4	8+4	20
Obstetrics & Gynaecology ²	4	4	8 +4	20
Pediatrics	2	4	4	10
Community Medicine	4	6	-	10
Orthopedics - including Trauma ³	2	4	2	8
Otorhinolaryngology	4	4	-	8
Ophthalmology	4	4	-	8
Respiratory Medicine	2	-	-	2
Psychiatry	2	2	-	4
Radiodiagnosis ⁴	2	-	-	2
Dermatology, Venereology & Leprosy	2	2	2	6
Dentistry & Anesthesia	-	2	-	2
Casualty	-	2	-	2
	36	42	48	126

* In four of the eight weeks of electives, regular clinical postings shall be accommodated.

Clinical postings may be adjusted within the time framework.

¹ This posting includes Laboratory Medicine (Para-clinical) & Infectious Diseases (Phase III Part I).

² This includes maternity training and family welfare (including Family Planning).

³ This posting includes Physical Medicine and Rehabilitation.

⁴ This posting includes Radiotherapy, wherever available.

9. New teaching / learning elements

9.1. Foundation Course

9.1.1 **Goal:** The goal of the Foundation Course is to prepare a learner to study medicine effectively. It will be of one month duration after admission.

9.1.2 **Objectives:** The objectives are to:

(a) Orient the learner to:

- (i) The medical profession and the physician's role in society
- (ii) The MBBS programme
- (iii) Alternate health systems in the country and history of medicine

- (iv) Medical ethics, attitudes and professionalism
- (v) Health care system and its delivery
- (vi) National health programmes and policies
- (vii) Universal precautions and vaccinations
- (viii) Patient safety and biohazard safety
- (ix) Principles of primary care (general and community based care)
- (x) The academic ambience

(b) Enable the learner to acquire enhanced skills in:

- (i) Language
- (ii) Interpersonal relationships
- (iii) Communication
- (iv) Learning including self-directed learning
- (v) Time management
- (vi) Stress management
- (vii) Use of information technology

(c) Train the learner to provide:

- (i) First-aid
- (ii) Basic life support

9.1.3 In addition to the above, learners may be enrolled in one of the following programmes which will be run concurrently:

- (a) Local language programme
- (b) English language programme
- (c) Computer skills
- (d) These may be done in the last two hours of the day for the duration of the Foundation Course.

9.1.4 These sessions must be as interactive as possible.

9.1.5 Sports (to be used through the Foundation Course as protected 04 hours / week).

9.1.6 Leisure and extracurricular activity (to be used through the Foundation Course as protected 02 hours per week).

9.1.7 Institutions shall develop learning modules and identify the appropriate resource persons for their delivery.

9.1.8 The time committed for the Foundation Course may not be used for any other curricular activity.

9.1.9 The Foundation Course will have compulsory 75% attendance. This will be certified by the Dean of the college.

9.1.10 The Foundation Course will be organized by the Coordinator appointed by the Dean of the college and will be under supervision of the heads of the preclinical departments.

9.1.11 Every college must arrange for a meeting with parents and their wards.

9.2. Early Clinical Exposure

9.2.1 **Objectives:** The objectives of early clinical exposure of the first-year medical learners are to enable the learner to:

- (a) Recognize the relevance of basic sciences in diagnosis, patient care and treatment,
- (b) Provide a context that will enhance basic science learning,
- (c) Relate to experience of patients as a motivation to learn,
- (d) Recognize attitude, ethics and professionalism as integral to the doctor-patient relationship,

- (e) Understand the socio-cultural context of disease through the study of humanities.

9.2.2 Elements

- (a) Basic science correlation: i.e. apply and correlate principles of basic sciences as they relate to the care of the patient (this will be part of integrated modules).
- (b) Clinical skills: to include basic skills in interviewing patients, doctor-patient communication, ethics and professionalism, critical thinking and analysis and self-learning (this training will be imparted in the time allotted for early clinical exposure).
- (c) Humanities: To introduce learners to a broader understanding of the socio-economic framework and cultural context within which health is delivered through the study of humanities and social sciences.

9.3. Electives

- 9.3.1 **Objectives:** To provide the learner with opportunities:

- (a) For diverse learning experiences,
- (b) To do research/community projects that will stimulate enquiry, self-directed, experiential learning and lateral thinking.

- 9.3.2 Two months are designated for elective rotations after completion of the examination at end of the third MBBS Part I and before commencement of third MBBS Part II.

- 9.3.3 It is mandatory for learners to do an elective. The elective time should not be used to make up for missed clinical postings, shortage of attendance or other purposes.

9.3.4 Structure

- (a) The learner shall rotate through two elective blocks of 04 weeks each.
- (b) Block 1 shall be done in a pre-selected preclinical or para-clinical or other basic sciences laboratory OR under a researcher in an ongoing research project.
- During the electives regular clinical postings shall continue.
- (c) Block 2 shall be done in a clinical department (including specialties, super-specialties, ICUs, blood bank and casualty) from a list of electives developed and available in the institution.

OR

as a supervised learning experience at a rural or urban community clinic.

- (d) Institutions will pre-determine the number and nature of electives, names of the supervisors, and the number of learners in each elective based on the local conditions, available resources and faculty.

- 9.3.5 Each institution will develop its own mechanism for allocation of electives.

- 9.3.6 It is preferable that elective choices are made available to the learners in the beginning of the academic year.

- 9.3.7 The learner must submit a learning log book based on both blocks of the elective.

- 9.3.8 75% attendance in the electives and submission of log book maintained during elective is required for eligibility to appear in the final MBBS examination.

- 9.3.9 Institutions may use part of this time for strengthening basic skill certification.

9.4. Professional Development including Attitude, Ethics and Communication Module (AETCOM)

- 9.4.1 **Objectives** of the programme: At the end of the programme, the learner must demonstrate ability to:

- (a) understand and apply principles of bioethics and law as they apply to medical practice and research understand and apply the principles of clinical reasoning as they apply to the care of the patients,
- (b) understand and apply the principles of system based care as they relate to the care of the patient,
- (c) understand and apply empathy and other human values to the care of the patient,
- (d) communicate effectively with patients, families, colleagues and other health care professionals,

- (e) understand the strengths and limitations of alternative systems of medicine,
- (f) respond to events and issues in a professional, considerate and humane fashion,
- (g) translate learning from the humanities in order to further his / her professional and personal growth.

9.4.2 **Learning experiences:**

- (a) This will be a longitudinal programme spread across the continuum of the MBBS programme including internship,
- (b) Learning experiences may include – small group discussions, patient care scenarios, workshop, seminars, role plays, lectures etc.
- (c) Attitude, Ethics & Communication Module (AETCOM module) developed by Medical Council of India should be used longitudinally for purposes of instruction.

9.4.3 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in each professional year.

9.4.4 Internal Assessment will include:

- (a) Written tests comprising of short notes and creative writing experiences,
- (b) OSCE based clinical scenarios / viva voce.

9.4.5 At least one question in each paper of the clinical specialties in the University examination should test knowledge competencies acquired during the professional development programme.

9.4.6 Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and viva voce.

9.5. Learner-doctor method of clinical training (Clinical Clerkship)

9.5.1 **Goal:** To provide learners with experience in:

- (a) Longitudinal patient care,
- (b) Being part of the health care team,
- (c) Hands-on care of patients in outpatient and inpatient setting.

9.5.2 **Structure:**

- (a) The first clinical posting in second professional shall orient learners to the patient, their roles and the specialty.
- (b) The learner-doctor programme will progress as outlined in Table 9.
- (c) The learner will function as a part of the health care team with the following responsibilities:
 - (i) Be part of the unit's outpatient services on admission days,
 - (ii) Remain with the admission unit until 6 PM except during designated class hours,
 - (iii) Be assigned patients admitted during each admission day for whom he/she will undertake responsibility, under the supervision of a senior resident or faculty member,
 - (iv) Participate in the unit rounds on its admission day and will present the assigned patients to the supervising physician,
 - (v) Follow the patient's progress throughout the hospital stay until discharge,
 - (vi) Participate, under supervision, in procedures, surgeries, deliveries etc. of assigned patients (according to responsibilities outlined in table 9),
 - (vii) Participate in unit rounds on at least one other day of the week excluding the admission day,
 - (viii) Discuss ethical and other humanitarian issues during unit rounds,
 - (ix) Attend all scheduled classes and educational activities,
 - (x) Document his/her observations in a prescribed log book / case record.

(d) No learner will be given independent charge of the patient

(e) The supervising physician will be responsible for all patient care decisions

9.5.3 **Assessment:**

- (a) A designated faculty member in each unit will coordinate and facilitate the activities of the learner, monitor progress, provide feedback and review the log book/ case record.
- (b) The log book/ case record must include the written case record prepared by the learner including relevant investigations, treatment and its rationale, hospital course, family and patient discussions, discharge summary etc.
- (c) The log book should also include records of outpatients assigned. Submission of the log book/ case record to the department is required for eligibility to appear for the final examination of the subject.

Table 9: Learner - Doctor programme (Clinical Clerkship)

Year of Curriculum	Focus of Learner - Doctor programme
Year 1	Introduction to hospital environment, early clinical exposure, understanding perspectives of illness
Year 2	History taking, physical examination, assessment of change in clinical status, communication and patient education
Year 3	All of the above and choice of investigations, basic procedures and continuity of care
Year 4	All of the above and decision making, management and outcomes

CHAPTER V**COMPETENCY BASED CURRICULUM OF THE INDIAN MEDICAL GRADUATE PROGRAMME****10. Specific Competencies**

10.1. Preamble: The salient feature of the revision of the medical curriculum in 2019 is the emphasis on learning which is competency-based, integrated and learner-centered acquisition of skills and ethical & humanistic values.

Each of the competencies described below must be read in conjunction with the goals of the medical education as listed in items 2 to 3.5.5

It is recommended that didactic teaching be restricted to less than one third of the total time allotted for that discipline. Greater emphasis is to be laid on hands-on training, symposia, seminars, small group discussions, problem-oriented and problem-based discussions and self-directed learning. Learners must be encouraged to take active part in and shared responsibility for their learning.

The global competencies to be achieved by the learner are outlined above in Chapter 1- section 3. Since the MBBS programme assessment will continue to be subject based, subject specific competencies have been outlined. These have to be acquired by the learner in the corresponding professional year. These competencies must be interpreted in the larger context outlined in section 3 and may be considered as “sub competencies” of the global competencies.

10.2. Integration must be horizontal (i.e. across disciplines in a given phase of the course) and vertical (across different phases of the course). As far as possible, it is desirable that teaching/learning occurs in each phase through study of organ systems or disease blocks in order to align the learning process. Clinical cases must be used to integrate and link learning across disciplines.

10.3. Pre-clinical Subjects**10.3.1. Human Anatomy**

(a) **Competencies:** The undergraduate must demonstrate:

1. Understanding of the gross and microscopic structure and development of human body,
2. Comprehension of the normal regulation and integration of the functions of the organs and systems on basis of the structure and genetic pattern,
3. Understanding of the clinical correlation of the organs and structures involved and interpret the anatomical basis of the disease presentations.

- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in organ systems with clinical correlation that will provide a context for the learner to understand the relationship between structure and function and interpret the anatomical basis of various clinical conditions and procedures.

10.3.2. Physiology

- (a) **Competencies:** The undergraduates must demonstrate:
1. Understanding of the normal functioning of the organs and organ systems of the body,
 2. Comprehension of the normal structure and organization of the organs and systems on basis of the functions,
 3. Understanding of age-related physiological changes in the organ functions that reflect normal growth and development,
 4. Understand the physiological basis of diseases.
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in organ systems in order to provide a context in which normal function can be correlated both with structure and with the biological basis, its clinical features, diagnosis and therapy.

10.3.3. Biochemistry

The course will comprise Molecular and Cellular Biochemistry.

- (a) **Competencies:** The learner must demonstrate an understanding of:
1. Biochemical and molecular processes involved in health and disease,
 2. Importance of nutrition in health and disease,
 3. Biochemical basis and rationale of clinical laboratory tests, and demonstrate ability to interpret these in the clinical context.
- (b) **Integration:** The teaching/learning programme should be integrated horizontally and vertically, as much as possible, to enable learners to make clinical correlations and to acquire an understanding of the cellular and molecular basis of health and disease.

10.3.4. Introduction to Community Medicine

- (a) **Competencies:** The undergraduate must demonstrate:
1. Understanding of the concept of health and disease,
 2. Understanding of demography, population dynamics and disease burden in National and global context,
 3. Comprehension of principles of health economics and hospital management,
 4. Understanding of interventions to promote health and prevent diseases as envisioned in National and State Health Programmes.

10.4. Second Professional (Para-Clinical)

10.4.1. Pathology

- (a) **Competencies:** The undergraduate must demonstrate:
1. Comprehension of the causes, evolution and mechanisms of diseases,
 2. Knowledge of alterations in gross and cellular morphology of organs in disease states,
 3. Ability to correlate the natural history, structural and functional changes with the clinical manifestations of diseases, their diagnosis and therapy,
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in organ systems recognizing deviations from normal structure and function and clinically correlated so as to provide an overall understanding of the etiology, mechanisms, laboratory diagnosis, and management of diseases.

10.4.2. Microbiology

- (a) **Competencies:** The undergraduate learner demonstrate:
1. Understanding of role of microbial agents in health and disease,
 2. Understanding of the immunological mechanisms in health and disease,
 3. Ability to correlate the natural history, mechanisms and clinical manifestations of infectious diseases as they relate to the properties of microbial agents,
 4. Knowledge of the principles and application of infection control measures,
 5. An understanding of the basis of choice of laboratory diagnostic tests and their interpretation, antimicrobial therapy, control and prevention of infectious diseases.
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in organ systems with emphasis on host-microbe-environment interactions and their alterations in disease and clinical correlations so as to provide an overall understanding of the etiological agents, their laboratory diagnosis and prevention.

10.4.3. Pharmacology

- (a) **Competencies:** The undergraduate must demonstrate:
1. Knowledge about essential and commonly used drugs and an understanding of the pharmacologic basis of therapeutics,
 2. Ability to select and prescribe medicines based on clinical condition and the pharmacologic properties, efficacy, safety, suitability and cost of medicines for common clinical conditions of national importance,
 3. Knowledge of pharmacovigilance, essential medicine concept and sources of drug information and industry-doctor relationship,
 4. Ability to counsel patients regarding appropriate use of prescribed drug and drug delivery systems.
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in organ systems recognizing the interaction between drug, host and disease in order to provide an overall understanding of the context of therapy.

10.4.4. Forensic Medicine and Toxicology

- (a) **Competencies:** The learner must demonstrate:
1. Understanding of medico-legal responsibilities of physicians in primary and secondary care settings,
 2. Understanding of the rational approach to the investigation of crime, based on scientific and legal principles,
 3. Ability to manage medical and legal issues in cases of poisoning / overdose,
 4. Understanding the medico-legal framework of medical practice and medical negligence,
 5. Understanding of codes of conduct and medical ethics.
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically recognizing the importance of medico-legal, ethical and toxicological issues as they relate to the practice of medicine.

10.4.5. Community Medicine – as per 10.3.4**10.5. Third Professional (Part I)****10.5.1. General Medicine**

- (a) **Competencies:** The student must demonstrate ability to do the following in relation to common medical problems of the adult in the community:

1. Demonstrate understanding of the patho-physiologic basis, epidemiological profile, signs and symptoms of disease and their investigation and management,
2. Competently interview and examine an adult patient and make a clinical diagnosis,
3. Appropriately order and interpret laboratory tests,
4. Initiate appropriate cost-effective treatment based on an understanding of the rational drug prescriptions, medical interventions required and preventive measures,
5. Follow up of patients with medical problems and refer whenever required,
6. Communicate effectively, educate and counsel the patient and family,
7. Manage common medical emergencies and refer when required,
8. Independently perform common medical procedures safely and understand patient safety issues.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to provide sound biologic basis and incorporating the principles of general medicine into a holistic and comprehensive approach to the care of the patient.

10.5.2. General Surgery

(a) **Competencies:** The student must demonstrate:

1. Understanding of the structural and functional basis, principles of diagnosis and management of common surgical problems in adults and children,
2. Ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and blood products based on the clinical condition,
3. Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic utilities of antibiotics and universal precautions in surgical practice,
4. Knowledge of common malignancies in India and their prevention, early detection and therapy,
5. Ability to perform common diagnostic and surgical procedures at the primary care level,
6. Ability to recognize, resuscitate, stabilize and provide Basic & Advanced Life Support to patients following trauma,
7. Ability to administer informed consent and counsel patient prior to surgical procedures,
8. Commitment to advancement of quality and patient safety in surgical practice.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to provide a sound biologic basis and a holistic approach to the care of the surgical patient.

10.5.3. Obstetrics and Gynaecology

(a) **Competencies in Obstetrics:** The student must demonstrate ability to:

1. Provide peri-conceptual counseling and antenatal care,
2. Identify high-risk pregnancies and refer appropriately,
3. Conduct normal deliveries, using safe delivery practices in the primary and secondary care settings,
4. Prescribe drugs safely and appropriately in pregnancy and lactation,
5. Diagnose complications of labor, institute primary care and refer in a timely manner,
6. Perform early neonatal resuscitation,
7. Provide postnatal care, including education in breast-feeding,
8. Counsel and support couples in the correct choice of contraception,

9. Interpret test results of laboratory and radiological investigations as they apply to the care of the obstetric patient,
10. Apply medico-legal principles as they apply to tubectomy, Medical Termination of Pregnancy (MTP), Pre-conception and Prenatal Diagnostic Techniques (PC PNDT Act) and other related Acts.

Competencies in Gynecology: The student must demonstrate ability to:

1. Elicit a gynecologic history, perform appropriate physical and pelvic examinations and PAP smear in the primary care setting,
 2. Recognize, diagnose and manage common reproductive tract infections in the primary care setting,
 3. Recognize and diagnose common genital cancers and refer them appropriately.
- (b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for women in their reproductive years and beyond, based on a sound knowledge of structure, functions and disease and their clinical, social, emotional, psychological correlates in the context of national health priorities.

10.5.4. Pediatrics

(a) **Competencies:** The student must demonstrate:

1. Ability to assess and promote optimal growth, development and nutrition of children and adolescents and identify deviations from normal,
2. Ability to recognize and provide emergency and routine ambulatory and First Level Referral Unit care for neonates, infants, children and adolescents and refer as may be appropriate,
3. Ability to perform procedures as indicated for children of all ages in the primary care setting,
4. Ability to recognize children with special needs and refer appropriately,
5. Ability to promote health and prevent diseases in children,
6. Ability to participate in National Programmes related to child health and in conformation with the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Strategy,
7. Ability to communicate appropriately and effectively.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for neonates, infants, children and adolescents based on a sound knowledge of growth, development, disease and their clinical, social, emotional, psychological correlates in the context of national health priorities.

10.5.5. Orthopaedics (including Trauma)

(a) **Competencies:** The student must demonstrate:

1. Ability to recognize and assess bone injuries, dislocation and poly-trauma and provide first contact care prior to appropriate referral,
2. Knowledge of the medico-legal aspects of trauma,
3. Ability to recognize and manage common infections of bone and joints in the primary care setting,
4. Recognize common congenital, metabolic, neoplastic, degenerative and inflammatory bone diseases and refer appropriately,
5. Ability to perform simple orthopaedic techniques as applicable to a primary care setting,
6. Ability to recommend rehabilitative services for common orthopaedic problems across all ages.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of orthopaedic problems, their management and correlation with function, rehabilitation and quality of life.

10.5.6. Forensic Medicine and Toxicology – as per 10.4.4**10.5.7. Community medicine**

(a) **Competencies:** The learner must demonstrate:

1. Understanding of physical, social, psychological, economic and environmental determinants of health and disease,
2. Ability to recognize and manage common health problems including physical, emotional and social aspects at individual family and community level in the context of National Health Programmes,
3. Ability to Implement and monitor National Health Programmes in the primary care setting,
4. Knowledge of maternal and child wellness as they apply to national health care priorities and programmes,
5. Ability to recognize, investigate, report, plan and manage community health problems including malnutrition and emergencies.

(b) **Integration:** The teaching should be aligned and integrated **horizontally** and vertically in order to allow the learner to understand the impact of environment, society and national health priorities as they relate to the promotion of health and prevention and cure of disease.

10.5.8. Dermatology, Venereology & Leprosy

(a) **Competencies:** The undergraduate student must demonstrate:

1. Understanding of the principles of diagnosis of diseases of the skin, hair, nail and mucosa,
2. Ability to recognize, diagnose, order appropriate investigations and treat common diseases of the skin including leprosy in the primary care setting and refer as appropriate,
3. A syndromic approach to the recognition, diagnosis, prevention, counseling, testing and management of common sexually transmitted diseases including HIV based on national health priorities,
4. Ability to recognize and treat emergencies including drug reactions and refer as appropriate.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to emphasize the biologic basis of diseases of the skin, sexually transmitted diseases and leprosy and to provide an understanding that skin diseases may be a manifestation of systemic disease.

10.5.9. Psychiatry

(a) **Competencies:** The student must demonstrate:

1. Ability to promote mental health and mental hygiene,
2. Knowledge of etiology (bio-psycho-social-environmental interactions), clinical features, diagnosis and management of common psychiatric disorders across all ages,
3. Ability to recognize and manage common psychological and psychiatric disorders in a primary care setting, institute preliminary treatment in disorders difficult to manage, and refer appropriately,
4. Ability to recognize alcohol/ substance abuse disorders and refer them to appropriate centers,
5. Ability to assess risk for suicide and refer appropriately,
6. Ability to recognize temperamental difficulties and personality disorders,
7. Assess mental disability and rehabilitate appropriately,
8. Understanding of National and State programmes that address mental health and welfare of patients and community.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand bio-psycho-social-environmental interactions that lead to diseases/ disorders for preventive, promotive, curative, rehabilitative services and medico-legal implications in the care of patients both in family and community.

10.5.10 Respiratory Medicine

(a) **Competencies:** The student must demonstrate:

1. Knowledge of common chest diseases, their clinical manifestations, diagnosis and management,
2. Ability to recognize, diagnose and manage pulmonary tuberculosis as contemplated in National Tuberculosis Control programme,
3. Ability to manage common respiratory emergencies in primary care setting and refer appropriately.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the student to recognize diagnose and treat TB in the context of the society, national health priorities, drug resistance and co-morbid conditions like HIV.

10.5.11 Otorhinolaryngology

(a) **Competencies:** The learner must demonstrate:

1. Knowledge of the common Otorhinolaryngological (ENT) emergencies and problems,
2. Ability to recognize, diagnose and manage common ENT emergencies and problems in primary care setting,
3. Ability to perform simple ENT procedures as applicable in a primary care setting,
4. Ability to recognize hearing impairment and refer to the appropriate hearing impairment rehabilitation programme.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the learner to understand the structural basis of ENT problems, their management and correlation with function, rehabilitation and quality of life.

10.5.12 Ophthalmology

(a) **Competencies:** The student must demonstrate:

1. Knowledge of common eye problems in the community
2. Recognize, diagnose and manage common eye problems and identify indications for referral,
3. Ability to recognize visual impairment and blindness in the community and implement National programmes as applicable in the primary care setting.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of ophthalmologic problems, their management and correlation with function, rehabilitation and quality of life.

10.5.13a Radiodiagnosis

(a) **Competencies:** The student must demonstrate:

1. Understanding of indications for various radiological investigations in common clinical practice,
2. Awareness of the ill effects of radiation and various radiation protective measures to be employed,
3. Ability to identify abnormalities in common radiological investigations.

(b) **Integration:** Horizontal and vertical integration to understand the fundamental principles of radiologic imaging, anatomic correlation and their application in diagnosis and therapy.

10.5.13b Radiotherapy

(a) **Competencies:** The student must demonstrate understanding of:

1. Clinical presentations of various cancers,
2. Appropriate treatment modalities for various types of malignancies,
3. Principles of radiotherapy and techniques.

- (b) **Integration:** Horizontal and vertical integration to enable basic understanding of fundamental principles of radio-therapeutic procedures.

10.5.14 Anaesthesiology

(a) **Competencies in Anaesthesiology:** The student must demonstrate ability to:

1. Describe and discuss the pre-operative evaluation, assessing fitness for surgery and the modifications in medications in relation to anaesthesia / surgery,
2. Describe and discuss the roles of Anaesthesiologist as a peri-operative physician including pre-medication, endotracheal intubation, general anaesthesia and recovery (including variations in recovery from anaesthesia and anaesthetic complications),
3. Describe and discuss the management of acute and chronic pain, including labour analgesia,
4. Demonstrate awareness about the maintenance of airway in children and adults in various situations,
5. Demonstrate the awareness about the indications, selection of cases and execution of cardio-pulmonary resuscitation in emergencies and in the intensive care and high dependency units,
6. Choose cases for local / regional anaesthesia and demonstrate the ability to administer the same,
7. Discuss the implications and obtain informed consent for various procedures and to maintain the documents.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for patients undergoing various surgeries, in patients with pain, in intensive care and in cardio respiratory emergencies. Integration with the preclinical department of Anatomy, para- clinical department of Pharmacology and horizontal integration with any/all surgical specialities is proposed.

10.6. Third Professional (Part II)

10.6.1. General Medicine – as per 10.5.1

10.6.2. General Surgery – as per 10.5.2

10.6.3. Obstetrics & Gynaecology – as per 10.5.3

10.6.4. Pediatrics – as per 10.5.4

10.6.5. Orthopaedics – as per 10.5.5

CHAPTER VI ASSESSMENT

11. Assessment

11.1. Eligibility to appear for Professional examinations

11.1.1. The performance in essential components of training are to be assessed, based on:

(a) Attendance

1. Attendance requirements are 75% in theory and 80% in practical /clinical for eligibility to appear for the examinations in that subject. In subjects that are taught in more than one phase – the learner must have 75% attendance in theory and 80% in practical in each phase of instruction in that subject.
2. If an examination comprises more than one subject (for e.g., General Surgery and allied branches), the candidate must have 75% attendance in each subject and 80% attendance in each clinical posting.
3. Learners who do not have at least 75% attendance in the electives will not be eligible for the Third Professional - Part II examination.

(b) **Internal Assessment:** Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health

care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

1. Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Para-clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.
2. When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
3. Day to day records and log book (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.
4. The final internal assessment in a broad clinical specialty (e.g., Surgery and allied specialties etc.) shall comprise of marks from all the constituent specialties. The proportion of the marks for each constituent specialty shall be determined by the time of instruction allotted to each.
5. Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject. Internal assessment marks will reflect as separate head of passing at the summative examination.
6. The results of internal assessment should be displayed on the notice board within a 1-2 weeks of the test. Universities shall guide the colleges regarding formulating policies for remedial measures for students who are either not able to score qualifying marks or have missed on some assessments due to any reason.
7. Learners must have completed the required certifiable competencies for that phase of training and completed the log book appropriate for that phase of training to be eligible for appearing at the final university examination of that subject.

University Examinations

- 11.2.1 University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact. Assessment shall be carried out on an objective basis to the extent possible.
- 11.2.2 Nature of questions will include different types such as structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part should be indicated separately. MCQs shall be accorded a weightage of not more than 20% of the total theory marks. In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass.
- 11.2.3 Practical/clinical examinations will be conducted in the laboratories and /or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion. Clinical cases kept in the examination must be common conditions that the learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders as examination cases is to be discouraged. Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.
- 11.2.4 Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values. Candidate's skill in interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.
- 11.2.5 There shall be one main examination in an academic year and a supplementary to be held not later than 90 days after the declaration of the results of the main examination.

11.2.6 A learner shall not be entitled to graduate after 10 years of his/her joining of the first part of the MBBS course.

11.2.7 University Examinations shall be held as under:

(a) First Professional

1. The first Professional examination shall be held at the end of first Professional training (1+12 months), in the subjects of Human Anatomy, Physiology and Biochemistry.
2. A maximum number of four permissible attempts would be available to clear the first Professional University examination, whereby the first Professional course will have to be cleared within 4 years of admission to the said course. Partial attendance at any University examination shall be counted as an availed attempt.

(b) Second Professional

1. The second Professional examination shall be held at the end of second professional training (11 months), in the subjects of Pathology, Microbiology, and Pharmacology.

(c) Third Professional

1. Third Professional Part I shall be held at end of third Professional part 1 of training (12 months) in the subjects of Ophthalmology, Otorhinolaryngology, Community Medicine and Forensic Medicine and Toxicology
2. Third Professional Part II - (Final Professional) examination shall be at the end of training (14 months including 2 months of electives) in the subjects of General Medicine, General Surgery, Obstetrics & Gynecology and Pediatrics. The discipline of Orthopedics, Anesthesiology, Dentistry and Radiodiagnosis will constitute 25% of the total theory marks incorporated as a separate section in paper II of General Surgery.
3. The discipline of Psychiatry and Dermatology, Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis will constitute 25% of the total theory marks in General Medicine incorporated as a separate section in paper II of General Medicine.

(d) Examination schedule is in Table 1.

(e) Marks distribution is in Table 10.

Table 10 : Marks distribution for various subjects

Phase of Course	Written-Theory – Total	Practicals/Orals/Clinicals	Pass Criteria
First Professional			<u>Internal Assessment:</u> 50% combined in theory and practical (not less than 40% in each) for eligibility for appearing for University Examinations
Human Anatomy - 2 papers	200	100	
Physiology - 2 papers	200	100	
Biochemistry - 2 papers	200	100	
Second Professional			
Pharmacology - 2 Papers	200	100	
Pathology - 2 papers	200	100	<u>University Examination</u> Mandatory 50% marks separately in theory and practical (practical = practical/clinical + viva)
Microbiology - 2 papers	200	100	
Third Professional Part – I			
Forensic Medicine & Toxicology - 1 paper	100	100	
Ophthalmology – 1 paper	100	100	

Otorhinolaryngology – 1 paper	100	100	
Community Medicine - 2 papers	200	100	
Third Professional Part – II			
General Medicine - 2 papers	200	200	
General Surgery - 2 papers	200	200	
Pediatrics – 1 paper	100	100	
Obstetrics & Gynaecology - 2 papers	200	200	

Note: At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.

11.2.8 **Criteria for passing in a subject:** A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in that subject.

11.2.9 **Appointment of Examiners**

- (a) Person appointed as an examiner in the particular subject must have at least four years of total teaching experience as assistant professor after obtaining postgraduate degree in the subject in a college affiliated to a recognized/approved/permitted medical college.
- (b) For the Practical/ Clinical examinations, there shall be at least four examiners for 100 learners, out of whom not less than 50% must be external examiners. Of the four examiners, the senior-most internal examiner will act as the Chairman and coordinator of the whole examination programme so that uniformity in the matter of assessment of candidates is maintained. Where candidates appearing are more than 100, two additional examiners (one external & one internal) for every additional 50 or part there of candidates appearing, be appointed.
- (c) In case of non-availability of medical teachers, approved teachers without a medical degree (engaged in the teaching of MBBS students as whole-time teachers in a recognized medical college), may be appointed examiners in their concerned subjects provided they possess requisite doctorate qualifications and four years teaching experience (as assistant professors) of MBBS students. Provided further that the 50% of the examiners (Internal & External) are from the medical qualification stream.
- (d) External examiners may not be from the same University.
- (e) The internal examiner in a subject shall not accept external examinership for a college from which external examiner is appointed in his/her subject.
- (f) A University having more than one college shall have separate sets of examiners for each college, with internal examiners from the concerned college.
- (g) External examiners shall rotate at an interval of 2 years.
- (h) There shall be a Chairman of the Board of paper-setters who shall be an internal examiner and shall moderate the questions.
- (i) All eligible examiners with requisite qualifications and experience can be appointed internal examiners by rotation in their subjects.
- (j) All theory paper assessment should be done as central assessment program (CAP) of concerned university.
- (k) Internal examiners should be appointed from same institution for unitary examination in same institution. For pooled examinations at one centre approved internal examiners from same university may be appointed.
- (l) The grace marks up to a maximum of five marks may be awarded at the discretion of the University to a learner for clearing the examination as a whole but not for clearing a subject resulting in exemption.

CHAPTER VII
INTERNSHIP

12. INTERNSHIP

Internship is a phase of training wherein a graduate will acquire the skills and competencies for practice of medical and health care under supervision so that he/she can be certified for independent medical practice as an Indian Medical Graduate. In order to make trained work force available, it may be considered as a phase of training wherein the graduate is expected to conduct actual practice under the supervision of a trained doctor. The learning methods and modalities have to be done during the MBBS course itself with larger number of hands on session and practice on simulators.

12.1. Goal:

The goal of the internship programme is to train medical students to fulfill their roles as doctors of first contact in the community.

12.2 Objectives: At the end of the internship period, the medical graduate will possess all competencies required of an Indian Medical Graduate, namely:

- 12.2.1 Independently provide preventive, promotive, curative and palliative care with compassion,
- 12.2.2 Function as leader and member of the health care team and health system,
- 12.2.3 Communicate effectively with patients, families, colleagues and the community,
- 12.2.4 Be certified in diagnostic and therapeutic skills in different disciplines of medicine taught in the undergraduate programme,
- 12.2.5 Be a lifelong learner committed to continuous improvement of skills and knowledge,
- 12.2.6 Be a professional committed to excellence and is ethical, responsive and accountable to patients, community and profession.

12.3 Time Distribution

Community Medicine (Residential posting)	2 months
General Medicine including 15 days of Psychiatry	2 months
General Surgery including 15 days Anaesthesia	2 months
Obstetrics & Gynaecology including Family Welfare Planning	2 months
Pediatrics	1 month
Orthopaedics including PM & R	1 month
Otorhinolaryngology	15 days
Ophthalmology	15 days
Casualty	15 days
Elective posting (1x15 days)	15 days

Subjects for Elective posting will be as follows:

1. Dermatology, Venereology & Leprosy
2. Respiratory Medicine
3. Radio diagnosis
4. Forensic Medicine & Toxicology
5. Blood Bank
6. Psychiatry

Note: Structure internship with assessment at the end in the college.

12.4 Other details:

- 12.4.1 The core rotations of the internship shall be done in primary and secondary/ tertiary care institutions in India. In case of any difficulties, the matter may be referred to the Medical Council of India to be considered on individual merit.
- 12.4.2 Every candidate will be required after passing the final MBBS examination to undergo compulsory rotational internship to the satisfaction of the College authorities and University concerned for a period of 12 months so as to be eligible for the award of the degree of Bachelor of Medicine and Bachelor of Surgery (MBBS) and full registration.
- 12.4.3 The University shall issue a provisional MBBS pass certificate on passing the final examination.
- 12.4.4 The State Medical Council will grant provisional registration to the candidate upon production of the provisional MBBS pass certificate. The provisional registration will be for a period of one year. In the event of the shortage or unsatisfactory work, the period of provisional registration and the compulsory rotating internship shall be suitably extended by the appropriate authorities.
- 12.4.5 The intern shall be entrusted with clinical responsibilities under direct supervision of a designated supervising physician. They shall not work independently.
- 12.4.6 Interns will not issue medical certificate or death certificate or other medico-legal document under their signature.
- 12.4.7 Each medical college must ensure that the student gets learning experience in primary/secondary and urban/rural centers in order to provide a diverse learning experience and facilitate the implementation of national health programmes/ priorities. These shall include community and outreach activities, collaboration with rural and urban community health centers, participation in government health missions etc.
- 12.4.8 One year's approved service in the Armed Forces Medical Services, after passing the final MBBS examination shall be considered as equivalent to the pre-registration training detailed above; such training shall, as far as possible, be at the Base/General Hospital. The training in Community Medicine should fulfill the norms of the MCI as proposed above.
- 12.4.9 In recognition of the importance of hands-on experience, full responsibility for patient care and skill acquisition, internship should be increasingly scheduled to utilize clinical facilities available in District Hospital, Taluka Hospital, Community Health Centre and Primary Health Centre, in addition to Teaching Hospital. A critical element of internship will be the acquisition of specific experiences and skill as listed in major areas: provided that where an intern is posted to District/Sub Divisional Hospital for training, there shall be a committee consisting of representatives of the college/University, the State Government and the District administration, who shall regulate the training of such trainee. Provided further that, for such trainee a certificate of satisfactory completion of training shall be obtained from the relevant administrative authorities which shall be countersigned by the Principal/Dean of College.

12.5 Assessment of Internship:

- 12.5.1 The intern shall maintain a record of work in a log book, which is to be verified and certified by the medical officer under whom he/she works. Apart from scrutiny of the record of work, assessment and evaluation of training shall be undertaken by an objective approach using situation tests in knowledge, skills and attitude during and at the end of the training.
- 12.5.2 Based on the record of work and objective assessment at the end of each posting, the Dean/Principal shall issue cumulative certificate of satisfactory completion of training at the end of internship, following which the University shall award the MBBS degree or declare him eligible for it.
- 12.5.3 Full registration shall only be given by the State Medical Council/Medical Council of India on the award of the MBBS degree by the University or its declaration that the candidate is eligible for it.
- 12.5.4 Some guidelines for the implementation of the training programme are given below.

12.6 **INTERNSHIP – DISCIPLINE RELATED:****12.6.1 COMMUNITY MEDICINE****GOAL:**

The aim of teaching the undergraduate student in Community Medicine is to impart such knowledge and skills that may enable him to diagnose and treat common medical illnesses and recognize the importance of community involvement. He/she shall acquire competence to deal effectively with an individual and the community in the context of primary health care. This is to be achieved by hands-on experience in the District Hospital and Primary Health Centre. The details are as under: -

I) District Hospital /Community Health Centre/Attachment to General Practitioner:**A. An intern must be able to do without assistance:**

1. An intern must:
 - a) Be able to diagnose common ailments and advise primary care;
 - b) Demonstrate knowledge on 'Essential drugs' and their usage;
 - c) Recognize medical emergencies, resuscitate and institute initial treatment and refer to a suitable institution.
2. An intern must be familiar with all National Health Programmes (e.g. RCH, UIP, CDD, ARI, FP, ANC, Tuberculosis, Leprosy and others), as recommended by the Ministry of Health and Family Welfare.
3. An intern must:
 - a) Gain full expertise in immunization against infectious disease;
 - b) Participate in programmes related to prevention and control of locally prevalent endemic diseases including nutritional disorders;
 - c) Learn skills in family welfare planning procedures;
4. An intern must:
 - a) Conduct programmes on health education,
 - b) Gain capabilities to use Audiovisual aids,
 - c) Acquire capability of utilization of scientific information for promotion of community health

B. An intern must have observed or preferably assisted at the following:

1. An intern should be capable of establishing linkages with other agencies as water supply, food distribution and other environmental/social agencies.
2. An intern should acquire managerial skills including delegation of duties to and monitoring the activities of paramedical staff and other health professionals.

II) Taluka Hospital/ First Referral Unit**A. An intern must be able to do without assistance:**

1. An intern shall provide health education to an individual/community on:
 - a) tuberculosis,
 - b) small family, spacing, use of appropriate contraceptives,
 - c) applied nutrition and care of mothers and children,
 - d) immunization.

B. An intern must be able to do with supervision:

An intern shall attend at least one school health programme with the medical officer.

III) Primary Health Centre / Urban Health Centre**A. An intern must be able to do without assistance the following:**

- a) Participate in family composite health care (birth to death), inventory of events.
- b) Participate in use of the modules on field practice for community health e.g. safe motherhood, nutrition surveillance and rehabilitation, diarrheal disorders etc.

- c) Participate in and maintain documents related to immunization and cold chain.
- d) Acquire competence in diagnosis and management of common ailments e.g. malaria, tuberculosis, enteric fever, congestive heart failure, hepatitis, meningitis acute renal failure etc.

B. An intern must be able to do under supervision the following:

- a) Acquire proficiency in Family Welfare Programmes (antenatal care, normal delivery, contraception etc.).
- b) Undergo village attachment of at least one week duration to understand issues of community health along with exposure to village health centres, ASHA Sub Centres.
- c) Participate in Infectious Diseases Surveillance and Epidemic Management activities along with the medical officer.

12.6.2 GENERAL MEDICINE

GOAL:

The aim of teaching the undergraduate student in General Medicine is to impart such knowledge and skills that may enable him to diagnose and treat common medical illnesses. He/she shall acquire competence in clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management; this would include diseases common in tropics (parasitic, bacterial or viral infections, nutritional disorders, including dehydration and electrolyte disturbances) and various system illnesses.

A. An intern must be able to do without assistance and interpret the results of:

- i. the following laboratory investigations:
 - a) Blood: (Routine haematology smear and blood groups),
 - b) Urine: (Routine chemical and microscopic examination),
 - c) Stool: (for ova/cyst and occult blood),
 - d) Sputum and throat swab for gram stain or acid-fast stain, and
 - e) Cerebrospinal Fluid (CSF) for smear,
 - f) Electrocardiogram (ECG),
 - g) Glucometer recording of blood sugar,
 - h) routine radiographs of chest, abdomen, skull etc.
- ii. Perform independently the following:
 - a) diagnostic procedures
 - Proctoscopy,
 - Ophthalmoscopy/Otoscopy,
 - Indirect laryngoscopy.
 - b) Therapeutic procedures;
 - Urethral catheterization,
 - Insertion of Ryle's Tube,
 - Pleural, Ascitic fluid aspiration,
 - Cerebrospinal Fluid (CSF) aspiration,
 - Air way tube installation,
 - Oxygen administration etc.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) **Biopsy Procedures:** Liver, Kidney, Skin, Nerve, Lymph node, and muscle biopsy, Bone marrow aspiration, Biopsy of Malignant lesions on surface, nasal/nerve/skin smear for leprosy under supervision.

C. Skills that an intern should be able to perform under supervision:

- a) An intern should be familiar with lifesaving procedures, including use of aspirator, respirator and defibrillator, cardiac monitor, blood gas analyser.
- b) An intern should be able to advise about management and prognosis of acute & chronic illnesses like viral fever, gastroenteritis, hepatitis, pneumonias, myocardial infarction and angina, TIA and stroke, seizures, diabetes mellitus, hypertension renal and hepatic failure, thyroid disorders and hematological disorders. He should participate in counseling sessions for patients with non-communicable diseases and tuberculosis, HIV patients etc.
- c) Intern should be able to confirm death and demonstrate understanding of World Health Organisation cause of death reporting and data quality requirements.
- d) Intern should be able to demonstrate understanding of the coordination with local and national epidemic management plans.
- e) Intern shall be able to demonstrate prescribing skills and demonstrate awareness of pharmacovigilance, antibiotics policy, prescription audit and concept of essential medicines list.

12.6.3: PEDIATRICS:**GOAL:**

The aim of teaching the undergraduate student in Pediatrics is to impart such knowledge and skills that may enable him to diagnose and treat common childhood illnesses including neonatal disorders. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management; this would include diseases common in tropics (parasitic, bacterial or viral infections, nutritional disorders, including dehydration and electrolyte disturbances) and various system illnesses.

A. An intern must be able to do without assistance:

An intern shall be able to diagnose and manage common childhood disorders including neonatal disorders and acute emergencies, examining sick child making a record of information.

An intern shall perform:

- a) **diagnostic techniques:** blood collection (including from femoral vein and umbilical cord), drainage of abscess, collection of cerebrospinal, pleural and peritoneal fluids, suprapubic aspiration of urine.
- b) **techniques related to patient care:** immunization, perfusion techniques, nasogastric tube insertion, feeding procedures, tuberculin testing & breast-feeding counseling.
- c) **use of equipments:** vital monitoring, temperature monitoring, resuscitation at birth and care of children receiving intensive care.
- d) institute early management of common childhood disorders with special reference to pediatric dosage and oral rehydration therapy.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) screening of newborn babies and those with risk factors for any anomalies and steps for prevention in future; detect congenital abnormalities;
- b) recognise growth abnormalities; recognise anomalies of psychomotor development;
- c) assess nutritional and dietary status of infants and children and organize prevention, detection and follow up of deficiency disorders both at individual and community levels, such as:
 - protein-energy malnutrition
 - deficiencies of vitamins especially A, B, C and D;
 - Iron deficiency

C. Skills that an intern should be able to perform under supervision:

- a) An intern should be familiar with life-saving procedures, including use of aspirator, respirator, cardiac monitor, blood gas analyser.
- b) An intern should be able to advise about management and prognosis of acute & chronic illnesses like viral fever, gastroenteritis, hepatitis, pneumonias, congenital heart diseases, seizures, renal and hepatic diseases, thyroid disorders and hematological disorders. She/he should participate in counseling sessions with parents including HIV counseling.

12.6.4: GENERAL SURGERY**GOAL:**

The aim of teaching the undergraduate student in General Surgery is to impart such knowledge and skills that may enable him to diagnose and treat common surgical ailments. He/she shall have ability to diagnose and suspect with reasonable accuracy all acute and chronic surgical illnesses.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) venesection or venous access
- b) tracheostomy and endotracheal intubation
- c) catheterization of patients with acute retention or trocar cystostomy
- d) drainage of superficial abscesses
- e) basic suturing of wound and wound management (including bandaging)
- f) biopsy of surface tumours
- g) perform vasectomy

(B) Skill that an intern should be able to perform under supervision:

- a) Advise about prognosis of acute & chronic surgical illnesses, head injury, trauma, burns and cancer. Counsel patients regarding the same.
- b) Advise about rehabilitation of patients after surgery and assist them for early recovery.
- c) Intern should be able to demonstrate understanding of World Health Organisation cause of death reporting and data quality requirements.
- d) Intern should be able to demonstrate understanding of the use of national and sub-national cause of death statistics.

(C) An intern must have observed or preferably assisted at the following operations/procedures:

- a) Resuscitation of critical patients
- b) Basic surgical procedures for major and minor surgical illnesses
- c) Wound dressings and application of splints
- d) Laparoscopic/ Minimally Invasive surgery
- e) Lymph node biopsy

12.6.5: CASUALTY:**GOAL:**

The aim of teaching the undergraduate student in casualty is to impart such knowledge and skills that may enable him/her to diagnose and treat common acute surgical /medical ailments. He/she shall have ability to diagnose and suspect, with reasonable accuracy, acute surgical illnesses including emergencies, resuscitate critically injured patient and a severely burned patient, control surface bleeding and manage open wounds and monitor and institute first-line management of patients of head, spine, chest, abdominal and pelvic injury as well as acute abdomen.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) Identification of acute emergencies in various disciplines of medical practice,
- b) Management of acute anaphylactic shock,
- c) Management of peripheral-vascular failure and shock,
- d) Management of acute pulmonary edema and Left Ventricular Failure (LVF),
- e) Emergency management of drowning, poisoning and seizure,
- f) Emergency management of bronchial asthma and status asthmaticus,
- g) Emergency management of hyperpyrexia,

- h) Emergency management of comatose patients regarding airways, positioning, prevention of aspiration and injuries,
- i) Assessment and administering emergency management of burns,
- j) Assessing and implementing emergency management of various trauma victims,
- k) Identification of medico-legal cases and learn filling up of forms as well as complete other medico-legal formalities in cases of injury, poisoning, sexual offenses, intoxication and other unnatural conditions.

(B) Skill that an intern should be able to perform under supervision:

- a) Advise about prognosis of acute surgical illnesses, head injury, trauma and burns. Counsel patients regarding the same.

(C) An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Resuscitation of critical patients
- b) documentation medico legal cases
- c) management of bleeding and application of splints;

12.6.6: OBSTETRICS AND GYNAECOLOGY

GOAL:

The aim of teaching the undergraduate student in Obstetrics & Gynaecology is to impart such knowledge and skills that may enable him to diagnose and manage antenatal and post natal follow up; manage labor and detect intrapartum emergencies; diagnose and treat common gynaecologic ailments.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) Diagnosis of early pregnancy and provision of ante-natal care; antenatal pelvic assessment and detection of cephalopelvic disproportion,
- b) Diagnosis of pathology of pregnancy related to:
 - abortion
 - ectopic pregnancy
 - tumours complicating pregnancy
 - acute abdomen in early pregnancy
 - hyperemesis gravidarum,
- c) Detection of high risk pregnancy cases and give suitable advice e.g. PIH, hydramanios, antepartum haemorrhage, multiple pregnancies, abnormal presentations and intra-uterine growth retardation,
- d) Induction of labor and amniotomy under supervision,
- e) Induction of labor and amniotomy under supervision,
- f) Management of normal labor, detection of abnormalities, post-partum hemorrhage and repair of perennial tears,
- g) Assist in forceps delivery,
- h) Detection and management of abnormalities of lactation,
- i) Evaluation and prescription oral contraceptives with counseling,
- j) Per speculum, per vaginum and per rectal examination for detection of common congenital, inflammatory, neoplastic and traumatic conditions of vulva, vagina, uterus and ovaries,
- k) Medico-legal examination in Gynecology and Obstetrics.

(B) Skills that an intern should be able to perform under supervision:

- a) Dilatation and curettage and fractional curettage,
- b) Endometrial biopsy,
- c) Endometrial aspiration,
- d) Pap smear collection,
- e) Intra Uterine Contraceptive Device (IUCD) insertion,
- f) Minilap ligation,
- g) Urethral catheterization,

- h) Suture removal in postoperative cases,
- i) Cervical punch biopsy.

(C) An intern must have observed or preferably assisted at the following

operations/ procedures:

- a) Major abdominal and vaginal surgery cases,
- b) Second trimester Medical Termination of Pregnancy (MTP) procedures
e.g. Emcredyl Prostaglandin instillations, Caesarean section.

12.6.7 OTORHINOLARYNGOLOGY (ENT)

GOAL:

The aim of teaching the undergraduate student in ophthalmology is to impart such knowledge and skills that may enable him to diagnose and treat common otorhinolaryngological conditions such as ear pain, foreign bodies and acquire ability for a comprehensive diagnosis of common Ear, Nose and Throat (ENT) diseases including emergencies and malignant neoplasms of the head and neck.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) Ear syringing, antrum puncture and packing of the nose for epistaxis,
- b) Nasal douching and packing of the external canal,
- c) Removing foreign bodies from nose and ear,
- d) Observing or assisting in various endoscopic procedures and tracheostomy.

(B) Skill that an intern should be able to perform under supervision:

- a) Intern shall have participated as a team member in the diagnosis of various ENT- related diseases and be aware of National programme on prevention of deafness,
- b) Intern shall acquire knowledge of various ENT related rehabilitative programmes.

(C) An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Intern shall acquire skills in the use of head mirror, otoscope and indirect laryngoscopy and first line of management of common Ear Nose and Throat (ENT) problems.

12.6.8 OPHTHALMOLOGY

GOAL:

The aim of teaching the undergraduate student in ophthalmology is to impart such knowledge and skills that may enable him to diagnose and treat common ophthalmological conditions such as Trauma, Acute conjunctivitis, allergic conjunctivitis, xerosis, entropion, corneal ulcer, iridocyclitis, myopia, hypermetropia, cataract, glaucoma, ocular injury and sudden loss of vision.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) Subconjunctival injection
- b) Ocular bandaging
- c) Removal of concretions
- d) Epilation and electrolysis
- e) Corneal foreign body removal
- f) Cauterization of corneal ulcers
- g) Chalazion removal
- h) Entropion correction
- i) Suturing conjunctival tears
- j) Lids repair
- k) Glaucoma surgery (assisted)
- l) Enucleation of eye in cadaver.

(B) Skill that an intern should be able to perform under supervision:

- (a) Advise regarding methods for rehabilitation of the blind.

(C) An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Assessment of refractive errors and advise its correction,
- b) Diagnose ocular changes in common systemic disorders,
- c) Perform investigative procedures such as tonometry, syringing, direct ophthalmoscopy, subjective refraction and fluorescein staining of cornea.

12.6.9 ORTHOPAEDICS**GOAL:**

The aim of teaching the undergraduate student in Orthopaedics and Physical Medicine and Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common ailments. He/she shall have ability to diagnose and suspect presence of fracture, dislocation, actual osteomyelitis, acute poliomyelitis and common congenital deformities such as congenital talipes equinovarus (CTEV) and dislocation of hip (CDH).

(A) THERAPEUTIC- An intern must assist in:

- a) Splinting (plaster slab) for the purpose of emergency splintage, definitive splintage and post-operative splintage and application of Thomas splint,
- b) Manual reduction of common fractures – phalangeal, metacarpal, metatarsal and Colles' fracture,
- c) Manual reduction of common dislocations – interphalangeal, metacarpophalangeal, elbow and shoulder dislocations,
- d) Plaster cast application for undisplaced fractures of arm, fore arm, leg and ankle,
- e) Emergency care of a multiple injury patient,
- f) Transport and bed care of spinal cord injury patients.

(B) Skill that an intern should be able to perform under supervision:

- a) Advise about prognosis of poliomyelitis, cerebral palsy, CTEV and CDH,
- b) Advise about rehabilitation of amputees and mutilating traumatic and leprosy deformities of hand.

(C) An intern must have observed or preferably assisted at the following operations:

- a) Drainage for acute osteomyelitis,
- b) Sequestrectomy in chronic osteomyelitis,
- c) Application of external fixation,
- d) Internal fixation of fractures of long bones.

12.6.10 DERMATOLOGY VENEREOLGY & LEPROSY**GOAL:**

The aim of teaching the undergraduate student in Dermatology Venereology & Leprosy is to impart such knowledge and skills that may enable him to diagnose and treat common dermatological infections and leprosy. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management; this would include diseases common in tropics (parasitic, bacterial or viral infections, and cutaneous manifestations of systemic illnesses).

A. THERAPEUTIC- At the end of internship an intern must be able to:

- a) Conduct proper clinical examination; elicit and interpret physical findings, and diagnose common disorders and emergencies,

- b) Perform simple, routine investigative procedures for making bedside diagnosis, specially the examination of scraping for fungus, preparation of slit smears and staining for AFB for leprosy patient and for STD cases,
- c) Manage common diseases recognizing the need for referral for specialized care in case of inappropriateness of therapeutic response.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Skin biopsy for diagnostic purpose

12.6.11 PSYCHIATRY

GOAL:

The aim of teaching the undergraduate student in Psychiatry is to impart such knowledge and skills that may enable him to diagnose and treat common psychiatric illnesses. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management. He/she should also be able to recognize the behavioural manifestations of systemic illnesses.

A. THERAPEUTIC- An intern must perform or assist in:

- a) Diagnose and manage common psychiatric disorders,
- b) Identify and manage psychological reactions,
- c) Diagnose and manage behavioural disorders in medical and surgical patients.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) ECT administration,
- b) Therapeutic counseling and follow-up.

12.6.12 RESPIRATORY MEDICINE

GOAL:

The aim of teaching the undergraduate student in Respiratory Medicine is to impart such knowledge and skills that may enable him to diagnose and treat common respiratory illnesses. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management.

A. THERAPEUTIC - An intern must perform or assist in:

- a) diagnosing and managing common respiratory disorders and emergencies,
- b) simple, routine investigative procedures required for making bed side diagnosis, especially sputum collection, examination for etiological organism like AFB, interpretation of chest X-rays and respiratory function tests,
- c) interpreting and managing various blood gases and pH abnormalities in various illnesses.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Laryngoscopy,
- b) Pleural aspiration, respiratory physiotherapy, laryngeal intubation and pneumo-thoracic drainage aspiration,
- c) Therapeutic counseling and follow up.

12.6.13 ANAESTHESIOLOGY

GOAL:

The aim of teaching the undergraduate student in anaesthesia is to impart such knowledge and skills that may enable him to understand principles of anaesthesia and recognize risk and complications of anaesthesia. At the end of internship, graduate should be able to perform cardio-pulmonary resuscitation correctly, including recognition of cardiac arrest.

(A) THERAPEUTIC- An intern must perform or assist in:

- a) Pre-anaesthetic checkup and prescribe pre-anaesthetic medications,

- b) Venepuncture and set up intravenous drip,
- c) Laryngoscopy and endotracheal intubation,
- d) Lumbar puncture, spinal anaesthesia and simple nerve blocks,
- e) Simple general anaesthetic procedures under supervision,
- f) Monitor patients during anaesthesia and in the post-operative period,
- g) Maintain anaesthetic records,
- h) Perform cardio-pulmonary resuscitation correctly, including recognition of cardiac arrest.

(B) Skill that an intern should be able to perform under supervision:

- a) Counseling and advise regarding various methods of anaesthesia,
- b) Recognise and manage problems associated with emergency anaesthesia,
- c) Recognise and treat complications in the post-operative period.

(C) An intern must have observed or preferably assisted at the following operations/ procedures:

- a) Anaesthesia for major and minor surgical and other procedures;

12.6.14 RADIODIAGNOSIS

GOAL:

The aim of teaching the undergraduate student in radiodiagnosis is to impart such knowledge and skills that may enable him to understand principles of imageology and recognize risk and complications of radiologic procedures and the need for protective techniques. At the end of internship, graduate should be able to counsel and prepare patients for various radiologic procedures.

An intern must acquire competency in:

- a) Identifying and diagnosing acute abdominal conditions clinically and choose appropriate imaging modality for diagnosis,
- b) Identifying and diagnosing acute traumatic conditions in bones and skull using X rays / CT Scans with emphasis on fractures and head injuries,
- c) Recognising basic hazards and precautions in radio-diagnostic practices specially related to pregnancy,
- d) Demonstrating awareness of the various laws like PC PNDT Act.

12.6.15 PHYSICAL MEDICINE AND REHABILITATION

GOAL:

The aim of teaching the undergraduate student in Physical Medicine & Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common rheumatologic, orthopedic and neurologic illnesses requiring physical treatment. He/she shall acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigations and institute appropriate line of management.

A. THERAPEUTIC- An intern must perform or assist in:

- a) Diagnosing and managing with competence clinical diagnosis and management based on detailed history and assessment of common disabling conditions like poliomyelitis, cerebral palsy, hemiplegia, paraplegia, amputations etc.
- b) Participation as a team member in total rehabilitation including appropriate follow up of common disabling conditions,
- c) Procedures of fabrication and repair of artificial limbs and appliances.

B. An intern must have observed or preferably assisted at the following operations/ procedures:

- a) use of self-help devices and splints and mobility aids
- b) accessibility problems and home making for disabled
- c) simple exercise therapy in common conditions like prevention of deformity in polio, stump exercise in an amputee etc.
- d) Therapeutic counselling and follow up

12.6.16 FORENSIC MEDICINE AND TOXICOLOGY**GOAL:**

The aim of teaching the undergraduate student in Forensic Medicine is to impart such knowledge and skills that may enable him to manage common medico-legal problems in day to day practice. He/she shall acquire competence for post mortem diagnosis based on history, physical examination and relevant observations during autopsy.

A. An intern must perform or assist in:

- a) Identifying and documenting medico-legal problems in a hospital and general practice,
- b) Identifying the medico-legal responsibilities of a medical man in various hospital situations,
- c) Diagnosing and managing with competence basic poisoning conditions in the community,
- d) Diagnosing and managing with competence and documentation in cases of sexual assault,
- e) Preparing medico-legal reports in various medico legal situations.

B. An intern must have observed or preferably assisted at the following operations/ procedures, as given in Table 11:

- a) Various medico legal / post-mortem procedures and formalities during their performance by police.

Table 11: Certifiable Procedural Skills:

A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate

Specialty	Procedure
General Medicine	<ul style="list-style-type: none"> • Venipuncture (I) • Intramuscular injection(I) • Intradermal injection (D) • Subcutaneous injection(I) • Intra Venous (IV) injection (I) • Setting up IV infusion and calculating drip rate (I) • Blood transfusion (O) • Urinary catheterization (D) • Basic life support (D) • Oxygen therapy (I) • Aerosol therapy / nebulization (I) • Ryle's tube insertion (D) • Lumbar puncture (O) • Pleural and ascitic aspiration (O) • Cardiac resuscitation (D) • Peripheral blood smear interpretation (I) • Bedside urine analysis (D)
General Surgery	<ul style="list-style-type: none"> • Basic suturing (I) • Basic wound care (I)

	<ul style="list-style-type: none"> • Basic bandaging (I) • Incision and drainage of superficial abscess (I) • Early management of trauma (I) and trauma life support (D)
Orthopedics	<ul style="list-style-type: none"> • Application of basic splints and slings (I) • Basic fracture and dislocation management (O) • Compression bandage (I)
Gynecology	<ul style="list-style-type: none"> • Per Speculum (PS) and Per Vaginal (PV) examination (I) • Visual Inspection of Cervix with Acetic Acid (VIA) (O) • Pap Smear sample collection & interpretation (I) • Intra- Uterine Contraceptive Device (IUCD) insertion & removal (I)
Obstetrics	<ul style="list-style-type: none"> • Obstetric examination (I) • Episiotomy (I) • Normal labor and delivery (including partogram) (I)
Pediatrics	<ul style="list-style-type: none"> • Neonatal resuscitation (D) • Setting up Pediatric IV infusion and calculating drip rate (I) • Setting up Pediatric Intraosseous line (O)
Forensic Medicine	<ul style="list-style-type: none"> • Documentation and certification of trauma (I) • Diagnosis and certification of death (D) • Legal documentation related to emergency cases (D) • Certification of medical-legal cases e.g. Age estimation, sexual assault etc. (D) • Establishing communication in medico-legal cases with police, public health authorities, other concerned departments, etc (D)
Otorhinolaryngology	<ul style="list-style-type: none"> • Anterior nasal packing (D) • Otoscopy (I)
Ophthalmology	<ul style="list-style-type: none"> • Visual acuity testing (I) • Digital tonometry (D) • Indirect ophthalmoscopy (O) • Epilation (O) • Eye irrigation (I) • Instillation of eye medication (I) • Ocular bandaging (I)
Dermatology	<ul style="list-style-type: none"> • Slit skin smear for leprosy (O) • Skin biopsy (O) • Gram's stained smear interpretation(I) • KOH examination of scrapings for fungus (D) • Dark ground illumination (O) • Tissue smear (O) • Cautery - Chemical and electrical (O)

- I- Independently performed on patients,
- O- Observed in patients or on simulations,
- D- Demonstration on patients or simulations and performance under supervision in patients

Certification of Skills: Any faculty member of concerned department can certify skills. For common procedures, the certifying faculty may be decided locally.

[ADVT.-III/4/Exty./277/19]

Dr. R. K. VATS, Secy. General

Foot Note: The Principal Regulations namely, “Graduate Medical Education Regulations, 1997” were published in Part – III, Section (4) of the Gazette of India vide Medical Council of India notification dated 4th March, 1997, and amended vide MCI notifications dated 29/05/1999, 02/07/2002, 30/09/2003, 16/10/2003, 01/03/2004, 20/10/2008, 15/12/2008, 22/12/2008, 25/03/2009, 19/04/2010, 07/10/2010, 21/12/2010, 15/02/2012, 29/12/2015, 05/08/2016, 21/09/2016, 10/03/2017, 04/07/2017, 23/01/2018, 06/02/2018, 21/05/2018, 05/02/2019 & 14/05/2019.



YENEPOYA

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YENEPOYA (DEEMED TO BE UNIVERSITY)

Deralakatte, Mangaluru -575018

REGULATIONS AND CURRICULUM GOVERNING

UNDERGRADUATE PROGRAM (MBBS) IN

MEDICINE AND SURGERY

Phase I MBBS CBME Curriculum

(REVISED CURRICULUM – AMENDED UP TO 2019)

ANATOMY

Goals and departmental objectives for the undergraduate (MBBS) CBME Curriculum

GOALS & OBJECTIVES

Goals

The broad aim of teaching of Anatomy is to prepare students with basic knowledge of structure and its correlation with function, growth and development of human body and to apply the knowledge in clinical practice.

Objectives

At the end of the course, the student should be able to:

Knowledge

1. Comprehend the normal disposition, clinically relevant interrelationship, functional and cross sectional anatomy of various structures in the body.
2. Identify the microscopic structure and correlate elementary ultra structure of various tissues and organs and correlate the structure with the functions as a pre-requisite for understanding the altered state in various disease processes.
3. Comprehend the basic structure and connections of the central nervous system to analyse the integrative and regulative functional of the organs and systems. He/She should be able to locate the site of gross lesions according to the deficits encountered.
4. Demonstrate knowledge of principles and sequential development of the organs and systems; recognize the critical stages of development and the effects of common teratogens genetic mutations and environmental hazards. He/she should be able to explain the developmental basis of various abnormalities.
5. Point out the features of appearances of normal human body in various skia grams after routine Radiological investigations.
6. Understand the principles of karyotyping and identify the gross congenital anomalies.
7. Understand the principles of newer imaging techniques and interpretation of CT Scans and Sonograms.
8. Understand clinical basis of some common clinical procedures i.e., intramuscular, intravenous injections, lumbar puncture bone marrow and kidney biopsy.
9. Understand different types of Bio-medical waste, their potential risks and their management.

Skills

1. Identify and locate structures of the body and mark the topography of living anatomy.
2. Identify the cells and tissues of organs under microscope.

Integration

From the integrated teaching of other basic sciences, radiology and surgery the students should be able to comprehend the regulation and integration of the functions of the organs and system in the body, thus interpret the anatomical basis of disease process.

MBBS - Curriculum

A. GENERAL ANATOMY

Topic: Anatomical terminology (AN1.1)

- Normal anatomical position
- Planes of the body
- Terms used for relations and comparison
- Terms used for movements of the body

Topic: General features of bones and Joints (AN1.2, AN2.1 to AN2.6)

- Composition of bone and bone marrow
- Parts, blood and nerve supply of a long bone
- Laws of ossification*
- Special features of a sesamoid bone*
- Types of cartilage with its structure and distribution in body
- Joints with subtypes and examples
- Nerve supply of joints and Hilton's law

Topic: General features of Muscle (AN3.1 to AN3.3)

- Classification of muscle tissue according to structure and action
- Parts of skeletal muscle
- Differences between tendons and aponeuroses with examples
- Shunt and spurt muscles*

Topic: General features of skin and fascia (AN4.1 to AN4.5)

- Types of skin and dermatomes in body*
- Structure and function of skin
- Superficial fascia along with fat distribution in body
- Modifications of deep fascia with its functions
- Principles of skin incisions*

Topic: General features of the cardiovascular system (AN5.1 to AN5.8)

- Differences between blood vascular and lymphatic system
- Differences between pulmonary and systemic circulation
- General differences between arteries and veins
- Functional differences between elastic, muscular arteries and arterioles
- Concept of portal system with examples
- Concept of anastomoses and collateral circulation with significance of end-arteries
- Functions of meta-arterioles, precapillary sphincters, arterio-venous anastomoses*
- Definition of thrombosis, infarction and aneurysm*

Topic: General Features of lymphatic system (AN6.1 to AN6.3)

- Components and functions of the lymphatic system

Structure of lymph capillaries and mechanism of lymph circulation*

- Concept of lymphoedema and spread of tumors via lymphatics and venous system*

Topic: Introduction to the nervous system (AN7.1 to AN7.8)

- General plan of nervous system with components of central, peripheral and autonomic nervous systems
- Components of nervous tissue and their functions
- Parts of a neuron
- Classification of neurons based on structure and function
- Structure of a typical spinal nerve
- Principles of sensory and motor innervation of muscles*
- Concept of loss of innervation of a muscle with its applied anatomy
- Type of synapses*
- Differences between sympathetic and spinal ganglia*

B. GENERAL HISTOLOGY

Topic: Epithelium (AN65.1 to AN65.2)

- Identification of epithelium under the microscope
- Correlation of structure and function of epithelia
- Ultrastructure of epithelium*

Topic: Connective tissue histology (AN66.1 to AN66.2)

- Types of connective tissue with functional correlation
- Ultrastructure of connective tissue*

Topic: Muscle histology (AN67.1 to AN67.3)

- Classification of muscle
- Structure-function correlation of muscle
- Ultrastructure of muscle tissue*

Topic: Nervous tissue histology (AN68.1 to AN68.3)

- Description and identification of unipolar and multipolar neurons, ganglia, peripheral nerve
- Structure-function correlation of neuron
- Ultrastructure of nervous tissue*

Topic: Blood vessels - histology (AN69.1 to AN69.3)

- Identification of elastic and muscular blood vessels, capillaries under the microscope
- Types and structure-function correlation of blood vessels
- Ultrastructure of blood vessels*

Topic: Glands and Lymphoid tissue (AN70.1 to AN70.2)

- Identification of exocrine glands under the microscope
- Differentiation between serous, mucous and mixed acini
- Identification of lymphoid tissue under the microscope
- Microanatomy of lymph node, spleen, thymus, tonsil and correlation of structure with function

Topic: Bone and Cartilage (AN71.1 to AN71.2)

- Identification of bone under the microscope
- Types and structure-function correlation of bone
- Identification of cartilage under the microscope
- Types and structure function correlation of cartilage

Topic: Integumentary System (AN72.1)

- Identification of skin and its appendages under the microscope
- Correlation of structure and function

C. GENETICS

Topic: Chromosomes (AN73.1 to AN73.3)

- Structure of chromosomes with classification
- Technique of karyotyping with its applications
- Lyon's hypothesis

Topic: Patterns of Inheritance (AN74.1 to AN74.4)

- Various modes of inheritance with examples
- Pedigree charts for the various types of inheritance
- Examples of diseases of each mode of inheritance
- Multifactorial inheritance with examples
- Genetic basis and clinical features of achondroplasia, cystic fibrosis, vitamin D resistant rickets, haemophilia, Duchenne's muscular dystrophy and sickle cell anaemia*

Topic: Principle of Genetics, Chromosomal Aberrations and Clinical Genetics (AN75.1 to AN75.5)

- Structural and numerical chromosomal aberrations
- Mosaics and chimeras with examples
- Genetic basis and clinical features of Prader Willi syndrome, Edward syndrome and Patau syndrome*
- Genetic basis of variation: polymorphism and mutation
- Principles of genetic counselling

D. GENERAL EMBRYOLOGY

Topic: Introduction to embryology (AN76.1 TO AN76.2)

- Stages of human life
- Terms - phylogeny, ontogeny, trimester, viability

Topic: Gametogenesis and fertilization (AN77.1 to AN77.6)

- Uterine changes occurring during the menstrual cycle
- Synchrony between the ovarian and menstrual cycles
- Spermatogenesis and oogenesis
- Stages and consequences of fertilization
- Anatomical principles underlying contraception
- Teratogenic influences; fertility and sterility, surrogate motherhood, social significance of “sex-ratio”*

Topic: Second week of development (AN78.1 to AN78.5)

- Cleavage and formation of blastocyst
- Development of trophoblast
- Process of implantation and common abnormal sites of implantation
- Formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate
- Abortion, decidual reaction, pregnancy tests

Topic: 3rd to 8th week of development (AN79.1 to AN79.6)

- Formation and fate of the primitive streak
- Formation and fate of notochord
- Process of neurulation
- Development of somites and intra-embryonic coelom
- Embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects
- Diagnosis of pregnancy in first trimester*
- Role of teratogens, alpha-fetoprotein*

Topic: Fetal membranes (AN80.1 to AN80.7)

- Formation, functions and fate of chorion, amnion, yolk sac, allantois and decidua
- Formation and structure of umbilical cord
- Formation of placenta, its physiological functions, foeto-maternal circulation and placental barrier
- Embryological basis of twinning in monozygotic and dizygotic twins
- Role of placental hormones in uterine growth and parturition
- Embryological basis of estimation of fetal age*
- Types of umbilical cord attachments*

Topic: Prenatal Diagnosis (AN81.1 to AN81.3)

- Methods of prenatal diagnosis
- Indications, process and disadvantages of amniocentesis
- Indications, process and disadvantages of chorion villus biopsy

E. UPPER LIMB

Topic: Features of individual bones (Upper Limb) (AN8.1 to AN8.6)

- Clavicle, scapula, humerus, radius, ulna - side determination, anatomical position and important features
- Joints formed by the given bone
- Peculiarities of clavicle
- Muscle group attachments on above bones
- Identification and naming of bones in articulated hand
- Parts of metacarpals and phalanges
- Peculiarities of pisiform
- Scaphoid fracture and basis of avascular necrosis*

Topic: Pectoral region (AN9.1 to AN 9.3)

- Pectoralis major, pectoralis minor - attachment, nerve supply and action
- Breast - location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy
- Development of breast*

Topic: Axilla, Shoulder and Scapular region (AN 10.1 to AN10.13)

- Axilla - boundaries and contents
- Axillary artery and tributaries of vein - origin, extent, course, parts, relations and branches
- Brachial plexus - formation, branches, relations, area of supply of branches, course and relations of terminal branches
- Axillary lymph nodes - anatomical groups and areas of drainage
- Variations in formation of brachial plexus
- Erb's palsy and Klumpke's paralysis - anatomical basis and clinical features*
- Enlarged axillary lymph nodes – anatomical basis*
- Latissimus dorsi and trapezius- location, attachment, nerve supply and actions
- Arterial anastomosis around the scapula*
- Boundaries of triangle of auscultation*
- Deltoid and rotator cuff muscles
- Serratus anterior - attachment and actions
- Shoulder joint - type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy
- Anatomical basis of injury to axillary nerve during intramuscular injections*

Topic: Arm and Cubital fossa (AN11.1 to AN11.6)

- Muscle groups of upper arm
- Biceps and triceps brachii
- Important nerves and vessels in arm - origin, course, relations, branches (or tributaries), termination
- Venepuncture of cubital veins - anatomical basis

- Saturday night paralysis - anatomical basis
- Cubital fossa - boundaries and contents
- Anastomosis around elbow joint*

Topic: Forearm and hand (AN12.1 to AN12.15)

- Ventral forearm - muscle groups with attachments, nerve supply and actions
- Nerves and vessels of forearm - origin, course, relations, branches (or tributaries), termination
- Flexor retinaculum - identification and attachments
- Anatomical basis of carpal tunnel syndrome
- Small muscles of hand
- Movements of thumb and muscles involved
- Blood vessels and nerves in hand - course and branches
- Anatomical basis of claw hand
- Fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths
- Infection of fascial spaces of palm*
- Dorsal forearm - muscle groups, attachments, nerve supply and actions
- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm
- Wrist drop - anatomical basis
- Compartments deep to extensor retinaculum
- Extensor expansion – identification and formation

Topic: General Features, joints, radiographs and surface marking (AN13.1 to AN13.8)

- Fascia of upper limb and compartments
- Veins of upper limb
- Lymphatic drainage of upper limb
- Dermatomes of upper limb*
- Elbow joint, proximal and distal radio-ulnar joints, wrist joint and first carpometacarpal joint - type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply
- Sternoclavicular joint, acromioclavicular joint, carpometacarpal joints and metacarpophalangeal joints*
- Bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand
- Bony landmarks of upper limb - jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, inferior angle of the scapula
- Surface projection of cephalic and basilic vein
- Palpation of brachial artery and radial artery
- Testing of muscles: trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, brachioradialis
- Development of upper limb*

F. THORAX

Topic: Thoracic cage (AN21.1 to AN21.11)

- Salient features of sternum, typical rib, 1st rib and typical thoracic vertebra
- Features of 2nd, 11th and 12th ribs*
- Features of 1st, 11th and 12th thoracic vertebrae*
- Boundaries of thoracic inlet, cavity and outlet
- Extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles
- Course, relations and branches of a typical intercostal nerve
- Origin, course and branches / tributaries of anterior, posterior intercostal vessels and internal thoracic vessels
- Origin, course, relations and branches of atypical intercostal nerve, superior intercostal artery and subcostal artery*
- Type, articular surfaces and movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints
- Mechanics and types of respiration
- Costochondral and interchondral joints*
- Boundaries and contents of the superior, anterior, middle and posterior mediastinum

Topic: Heart and Pericardium (AN22.1 to AN22.7)

- Pericardium - subdivisions, sinuses, blood supply and nerve supply
- External and internal features of each chamber of the heart
- Origin, course and branches of coronary arteries
- Anatomical basis of ischaemic heart disease
- Formation, course, tributaries and termination of coronary sinus
- Fibrous skeleton of heart
- Position and arterial supply of the conducting system of heart

Topic: Mediastinum (AN23.1 to AN23.7)

- Oesophagus - external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy
- Thoracic duct - extent, relations, tributaries and applied anatomy
- Origin, course, relations, tributaries and termination of superior vena cava, azygos, hemiazygos and accessory hemiazygos veins
- Branches and relations of arch of aorta and descending thoracic aorta
- Location and extent of thoracic sympathetic chain
- Description of splanchnic nerves*
- Right lymphatic duct – extent, relations and applied anatomy

Topic: Lungs and Trachea (AN24.1 to AN24.6, AN25.1 to AN25.6)

- Pleura – extent, recesses with their applied anatomy, blood supply, lymphatic drainage and nerve supply
- Lungs – side determination, external features including root and clinical correlates

- Description of bronchopulmonary segments
- Phrenic nerve - formation and distribution
- Blood supply, lymphatic drainage and nerve supply of lungs
- Extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea*

Topic: Radiological anatomy of thorax (AN25.7 and AN25.8)

- Identification of structures seen on a plain x-ray chest (PA view)
- Identification of and description in brief of a barium swallow*

Topic: Surface marking of thorax (AN25.9)

- Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat and surface projection of valves of heart

Topic: Histology of thorax (AN25.1)

- Identification, drawing and labelling of a slide of trachea and lung

Topic: Embryology of thorax (AN25.2 to AN25.6)

- Development of pleura, lung and heart
- Fetal circulation and changes occurring at birth
- Embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy and 4) tracheo-oesophageal fistula
- Developmental basis of common cardiac congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta
- Development of aortic arch arteries, superior vena cava, inferior vena cava and coronary sinus*

G. ABDOMEN AND PELVIS

Topic: Anterior abdominal wall (AN44.1 to AN44.7)

- Planes (transpyloric, transtuberular, subcostal, lateral vertical), regions and quadrants of abdomen
- Anterior abdominal wall – fascia, blood vessels and nerves
- Rectus sheath – formation, contents, linea alba and lineasemilunaris
- Inguinal canal - extent, boundaries, contents of inguinal canal, Hesselbach's triangle
- Anatomical basis of inguinal hernia
- Attachments of muscles of anterior abdominal wall
- Common abdominal incisions*
- Umbilicus - position, dermatome and applied aspects*

Topic: Posterior abdominal wall (AN45.1 to AN45.3)

- Thoracolumbar fascia
- Lumbar plexus – root value, formation and branches
- Other nerve plexuses of posterior abdominal wall*

- Major subgroups of back muscles, nerve supply and action*

Topic: Male external genitalia (AN46.1 to AN46.5)

- Testes - coverings, internal structure, side determination, blood supply, nerve supply and lymphatic drainage
- Descent of testis with its applied anatomy
- Parts of epididymis
- Penis - parts, components, blood supply and lymphatic drainage
- Anatomical basis of varicocele*
- Anatomical basis of phimosis and circumcision*
- Spermatic cord and its contents

Topic: Abdominal cavity (AN47.1 to AN47.14)

- Greater and lesser sac - boundaries and recesses
- Naming and identification of peritoneal folds and pouches
- Anatomical basis of ascites, peritonitis and subphrenic abscess*
- Spleen - anatomical position, external features, peritoneal and visceral relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Anatomical basis of splenic notch, accessory spleens and Kehr's sign*
- Coeliac trunk- origin, course, important relations and branches
- Abdominal part of oesophagus - anatomical position, blood supply, nerve supply, lymphatic drainage and applied aspects
- Stomach - anatomical position, external features, peritoneal and visceral relations, blood supply, nerve supply, lymphatic drainage and applied anatomy
- Anatomical basis of lymphatic spread in carcinoma stomach and different types of vagotomy*
- Mesentery – extent, borders, contents, relations and applied aspects
- Small Intestine - parts, macroscopic difference between jejunum and ileum, nerve supply and lymphatic drainage
- Superior mesenteric artery - origin, course, termination, important relations and branches
- Large intestine - features, extent, peritoneal and other relations
- Caecum - anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Vermiform appendix - anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Inferior mesenteric artery - origin, course, important relations and branches
- Duodenum - anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Pancreas - anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects

- Liver and extrahepatic biliary apparatus - anatomical position, external features, important peritoneal relations and visceral relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Clinical importance of Calot's triangle*
- Anatomical basis of site of needle puncture in liver biopsy, referred pain in cholecystitis and obstructive jaundice*
- Portal vein – formation, course, relations, tributaries and sites of porta-systemic anastomoses
- Anatomical basis of haematemesis and caput medusae in portal hypertension
- Kidneys - anatomical position, side determination, coverings, external features, important visceral relations, blood supply, nerve supply, lymphatic drainage and applied anatomy
- Anatomical basis of radiating pain of kidney to groin*
- Ureter – extent, parts, course, relations, constrictions, blood supply, nerve supply, lymphatic drainage and applied aspects
- Suprarenal gland - anatomical position, coverings, external features, important visceral and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects
- Thoraco-abdominal diaphragm – attachments, major and minor openings, nerve supply and actions
- Thoraco-abdominal diaphragm - abnormal openings and diaphragmatic hernia*
- Abdominal aorta - origin, course, important relations and branches
- Inferior vena cava - formation, course, relations and tributaries

Topic: Pelvic wall and viscera (AN48.1 to AN48.8)

- Muscles of pelvic diaphragm
- Position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of important male and female pelvic viscera
- Origin, course, important relations and branches of internal iliac artery
- Branches of sacral plexus
- Anatomical basis of suprapubic cystostomy, urinary obstruction in benign prostatic hypertrophy, retroverted uterus, prolapse uterus, internal and external haemorrhoids, anal fistula, vasectomy, tubal pregnancy and tubal ligation*
- Neurological basis of automatic bladder*
- Lobes involved in benign prostatic hypertrophy and prostate cancer*
- Structures palpable during vaginal and rectal examination*

Topic: Perineum (AN49.1 to AN49.5)

- Boundaries and contents of superficial and deep perineal pouch
- Perineal body - identification and description
- Perineal membrane in male and female
- Ischioanal fossa - boundaries, contents and applied anatomy
- Anatomical basis of perineal tear, episiotomy, perianal abscess and anal fissure*

Topic: Vertebral column (AN50.1 to AN50.4)

- Curvatures of the vertebral column
- Type, articular ends, ligaments and movements of intervertebral joints, sacroiliac joints and pubic symphysis
- Site, direction of the needle and structures pierced during lumbar puncture
- Anatomical basis of scoliosis, lordosis, prolapsed disc, spondylolisthesis and spina bifida*

Topic: Sectional Anatomy of Abdomen and Pelvis (AN51.1, AN51.2)

- Cross-sections at T8, T10 and L1 (transpyloric plane) levels
- Midsagittal section of male and female pelvis

Topic: Histology and embryology (AN52.1 to AN52.8)

- Microstructure of oesophagus, cardiooesophageal junction*, fundus of stomach, pylorus of stomach
- Microstructure of duodenum, jejunum, ileum
- Microstructure of colon, appendix
- Microstructure of liver, gallbladder, pancreas
- Microstructure of kidney, ureter, suprarenal gland
- Microstructure of testis, epididymis, vas deferens, penis, prostate gland
- Microstructure of ovary, uterus, uterine tube, cervix*, placenta, umbilical cord, corpus luteum*
- Development of anterior abdominal wall*
- Development and congenital anomalies of diaphragm
- Development and congenital anomalies of foregut
- Development and congenital anomalies of midgut
- Development and congenital anomalies of hindgut
- Development of urinary system
- Development of male reproductive system
- Development of female reproductive system

Topic: Osteology (AN53.1 to AN53.4)

- Lumbar vertebrae - anatomical position, salient features, articulations and attachments of muscle groups
- Sacrum and coccyx - anatomical position, salient features, articulations and attachments of muscle groups
- Bony pelvis - anatomical position, boundaries of pelvic inlet, pelvic cavity and pelvic outlet,
- True and false pelvis with sex differences
- Clinical importance - sacralization of lumbar vertebra, lumbarization of 1st sacral vertebra, types of bony pelvis*

Topic: Radiological anatomy (AN 54.1 to AN54.3)

- Features of plain X ray abdomen
- Contrast X ray - barium swallow, barium meal, barium enema
- Cholecystography
- Intravenous pyelography
- Hysterosalpingography
- ERCP*
- CT abdomen*
- MRI abdomen and pelvis*
- Abdominal arteriography*

Topic: Surface marking (AN 55.1 and AN55.2)

- Regions and planes of abdomen
- Superficial inguinal ring
- Deep inguinal ring
- McBurney's point
- Renal angle
- Murphy's point
- Surface projections of - stomach, liver, fundus of gall bladder, spleen, duodenum, pancreas, ileocaecal junction, kidneys and root of mesentery, abdominal aorta and inferior vena cava

H. LOWER LIMB

Topic: Features of individual bones (lower limb) (AN 14.1 - 14.4)

- Hip bone, femur, patella, tibia, fibula - side determination, anatomical position and important features
- Joints formed by the given bone
- Muscle group attachments on above bones
- Importance of ossification of lower end of femur and upper end of tibia
- Identification and naming of bones in articulated foot with individual muscle attachments*

Topic: Front & Medial Side of Thigh (AN15.1 to AN15.6)

- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh
- Major muscles with their attachment, nerve supply and actions
- Femoral triangle - boundaries and contents
- Anatomical basis of psoas abscess & femoral hernia*
- Adductor canal – boundaries and contents

Topic: Gluteal region & Back of thigh (AN16.1 to AN16.6)

- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region
- Major muscles with their attachment, nerve supply and actions
- Anatomical basis of sciatic nerve injury during gluteal intramuscular injections
- Anatomical basis of Trendelenburg sign
- Hamstring group of muscles with their attachment, nerve supply and actions
- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh
- Popliteal fossa - boundaries, roof, floor, contents and relations

Topic: Hip joint (AN17.1 to AN17.3)

- Type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint
- Anatomical basis of complications of fracture neck of femur
- Dislocation of hip joint and surgical hip replacement

Topic: Knee joint, Antero-lateral compartment of leg & Dorsum of foot (AN18.1 to AN18.7)

- Major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions
- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterolateral compartment of leg
- Anatomical basis of foot drop
- Type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint
- Anatomical basis of locking and unlocking of the knee joint
- Anatomical basis of knee joint injuries
- Anatomical basis of osteoarthritis

Topic: Back of leg & Sole (AN19.1 to AN19.7)

- Major muscles of back of leg with their attachment, nerve supply and actions
- Origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg
- Concept of “peripheral heart”
- Sole - layers, muscles, vessels and nerves
- Anatomical basis of rupture of calcaneal tendon
- Factors maintaining arches of the foot and their importance
- Anatomical basis of flat foot and club foot
- Anatomical basis of metatarsalgia and plantar fasciitis

Topic: General features, joints, radiographs & surface marking (AN 20.1 - 20.10)

- Tibiofibular and ankle joints - type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply

- Subtalar and transverse tarsal joints
- Fascia lata, venous drainage, lymphatic drainage, retinacula and dermatomes of lower limb
- Anatomical basis of enlarged inguinal lymph node
- Anatomical basis of varicose veins and deep vein thrombosis
- Bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb
- Important bony landmarks of lower limb - vertebral level of highest point on iliac crest, anterior and posterior superior iliac spines, iliac tuberosity, pubic tubercle, ischial tuberosity, adductor tubercle, tibial tuberosity, head of fibula, medial and lateral malleoli, condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal and tuberosity of the navicular
- Palpation of arterial pulses in a simulated environment - femoral, popliteal, anterior tibial, posterior tibial and dorsalis pedis
- Surface marking - mid inguinal point, saphenous opening, great and small saphenous veins, femoral nerve, sciatic, tibial, common peroneal and deep peroneal nerve
- Basic concept of development of lower limb

I. HEAD AND NECK

Topic: Skull osteology (AN26.1 to AN26.7)

- Anatomical position of skull
- Identification and naming of individual skull bones
- Features of norma frontalis, verticalis, occipitalis, lateralis and basalis
- Cranial cavity - subdivisions, foramina and structures passing through them
- Morphological features of mandible
- Features of typical and atypical cervical vertebrae (atlas and axis)
- Concept of membranous ossification
- Features of the 7th cervical vertebra

Topic: Scalp (AN27.1 and AN27.2)

- Scalp - layers, blood supply, nerve supply and surgical importance
- Emissary veins and their role in spread of infection from extracranial route to intracranial venous sinuses

Topic: Face and parotid region (AN28.1 to AN28.10)

- Muscles of facial expression and their nerve supply
- Sensory innervation of face
- Origin / formation, course, branches / tributaries of facial vessels
- Branches of facial nerve with distribution
- Cervical lymph nodes and lymphatic drainage of head, face and neck
- Superficial muscles of face, their nerve supply and actions

- Anatomical basis of facial nerve palsy
- Surgical importance of deep facial vein
- Parotid gland - parts, borders, surfaces, contents, relations, nerve supply, course of its duct and surgical importance
- Anatomical basis of Frey's syndrome*

Topic: Posterior triangle of neck (AN29.1 to AN29.4)

- Sternocleidomastoid - attachments, nerve supply, relations and actions
- Anatomical basis of Erb's and Klumpke's palsy
- Anatomical basis of wry neck*
- Attachments of inferior belly of omohyoid, scalenus anterior, scalenus medius and levator scapulae*

Topic: Cranial cavity (AN30.1 to AN30.5)

- Cranial fossae and related structures
- Major foramina with structures passing through them
- Identification and description of dural folds and dural venous sinuses
- Clinical importance of dural venous sinuses
- Effect of pituitary tumours on visual pathway

Topic: Orbit (AN31.1 to AN31.5)

- Extraocular muscles – demonstration and description
- Nerves and vessels in the orbit - demonstration and description
- Anatomical basis of Horner's syndrome
- Components of lacrimal apparatus
- Anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus

Topic: Anterior triangle of neck (AN32.1 and AN32.2)

- Boundaries and subdivisions of anterior triangle
- Boundaries and contents of muscular, carotid, digastric and submental triangles

Topic: Temporal and infratemporal region (AN33.1 to AN33.5)

- Temporal and infratemporal fossae - extent, boundaries and contents
- Muscles of mastication - attachments, direction of fibres, nerve supply and actions
- Temporomandibular joint - articulating surface, type and movements
- Clinical significance of pterygoid venous plexus
- Features of dislocation of temporomandibular joint*

Topic: Submandibular region (AN34.1 and AN34.2)

- Submandibular salivary gland - morphology, relations and nerve supply including submandibular ganglion
- Anatomical basis of formation of submandibular stones*

Topic: Deep structures in the neck (AN35.1 to AN35.10)

- Deep cervical fascia - parts, extent, attachments and modifications
- Thyroid gland - location, parts, borders, surfaces, relations and blood supply
- Subclavian artery - origin, parts, course and branches
- Internal jugular and brachiocephalic veins - formation, course, relations, tributaries and termination
- Cervical lymph nodes - extent, drainage and applied anatomy
- Cervical sympathetic chain - extent, formation, relation and branches
- IX, X, XI and XII cranial nerves - course and branches in the neck
- Anatomical basis of clinical features of thyroid swellings
- Anatomical basis of clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib
- Fascial spaces of neck

Topic: Mouth, pharynx and palate (AN36.1 to AN36.5)

- Palatine tonsil - morphology, relations, blood supply and applied anatomy
- Composition of soft palate
- Waldeyer's lymphatic ring - components and functions
- Pyramidal fossa - boundaries and clinical significance
- Anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess
- Clinical significance of Killian's dehiscence

Topic: Cavity of nose (AN37.1 to AN37.3)

- Nasal septum and lateral wall of nose – features, blood supply and nerve supply
- Paranasal sinuses - location and functional anatomy
- Anatomical basis of sinusitis and maxillary sinus tumours

Topic: Larynx (AN38.1 to AN38.3)

- Larynx - morphology, structure of the walls, nerve supply, blood supply and actions of intrinsic and extrinsic muscles
- Anatomical aspects of laryngitis
- Anatomical basis of recurrent laryngeal nerve injury

Topic: Tongue (AN39.1 and AN39.2)

- Tongue - morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles
- Anatomical basis of hypoglossal nerve palsy

Topic: Organs of hearing and equilibrium (AN40.1 to AN40.5)

- External ear - parts, blood supply and nerve supply
- Middle ear and auditory tube - boundaries, contents, relations and functional anatomy
- Features of internal ear
- Anatomical basis of otitis externa and otitis media

- Anatomical basis of myringotomy

Topic: Eyeball (AN41.1 to AN41.3)

- Eyeball - parts and layers
- Anatomical aspects of cataract, glaucoma and central retinal artery occlusion*
- Intraocular muscles - position, nerve supply and actions*

Topic: Back region (AN42.1 to AN42.3)

- Contents of the vertebral canal
- Suboccipital triangle - boundaries and contents
- Semispinalis capitis and splenius capitis - position, direction of fibres, relations, nerve supply and actions*

Topic: Head and neck joints, histology, development, radiography and surface marking (AN43.1 to AN43.9)

- Atlantooccipital joint and atlantoaxial joint - movements with muscles producing them
- Microanatomy of pituitary gland, thyroid gland, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea and retina
- Microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea, organ of Corti and pineal gland*
- Development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland and eye
- Testing of muscles of facial expression, extraocular muscles and muscles of mastication,
- Palpation of arteries - carotid, facial and superficial temporal arteries
- Location of - hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels
- Surface marking - thyroid gland, parotid gland and duct, pterion, common carotid artery, internal jugular vein, subclavian vein, external jugular vein, facial artery in the face and accessory nerve
- Identify the anatomical structures in 1) Plain X-ray skull – AP and lateral view; 2) Plain X-ray cervical spine - AP and lateral view; 3) Plain X-ray of paranasal sinuses
- Carotid and vertebral angiograms - anatomical route and anatomical structures*

J. NEUROANATOMY

Topic: Meninges and CSF (AN56.1 and AN56.2)

- Meninges - layers with their extent and modifications
- Circulation of CSF with its applied anatomy

Topic: Spinal cord (AN57.1 to AN57.5)

- Spinal cord - external features, extent in child and adult with its clinical implications
- Transverse section of spinal cord at mid-cervical and mid-thoracic level

- Ascending and descending tracts at mid thoracic level of spinal cord
- Anatomical basis of syringomyelia*

Topic: Medulla oblongata (AN58.1 to AN58.4)

- Medulla oblongata - external features
- Transverse section of medulla oblongata at the level of 1) pyramidal decussation; 2) sensory decussation; 3) inferior olivary nucleus
- Cranial nerve nuclei in medulla oblongata with their functional components
- Anatomical basis and effects of medial and lateral medullary syndrome*

Topic: Pons (AN59.1 to AN59.3)

- Pons - external features
- Transverse section of pons at the upper and lower level
- Cranial nerve nuclei in pons with their functional components

Topic: Cerebellum (AN60.1 to AN60.3)

- Cerebellum - external and internal features
- Connections of cerebellar cortex and intracerebellar nuclei
- Anatomical basis of cerebellar dysfunction*

Topic: Midbrain (AN61.1 to AN61.3)

- Midbrain - external and internal features
- Internal features of midbrain at the level of superior and inferior colliculus
- Anatomical basis and effects of Benedikt's and Weber's syndrome*

Topic: Cranial nerve nuclei and cerebral hemispheres (AN62.1 to AN62.6)

- Cranial nerve nuclei with their functional components
- Cerebral hemispheres – poles, surfaces, sulci, gyri and functional areas
- White matter of cerebrum
- Basal ganglia and limbic lobe - parts and major connections
- Dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus - boundaries, parts, gross relations, major nuclei and connections
- Circle of Willis - formation, branches and major areas of distribution

Topic: Ventricular system (AN63.1 and AN63.2)

- Lateral, 3rd and 4th ventricles - parts, boundaries and features
- Anatomical basis of congenital hydrocephalus*

Topic: Histology and Embryology (AN64.1 to AN64.3)

- Microanatomical features of spinal cord, cerebellum and cerebrum
- Development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemispheres and cerebellum
- Various types of open neural tube defects with their embryological basis*

K. ETHICS IN ANATOMY - AN82.1

- Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue.

Summary of time allotted, teaching and learning methods and student assessment

TIME ALLOTTED

Curricular component	Time allotted in hours
Lectures	220
Small group teaching / tutorials / integrated learning /practical	415
Self-directed learning	40
Early clinical exposure (basic science correlation and clinical skills)	30 (18 +12)
AETCOM module 1.1 and 1.5	12 (8+4)
Total	717

PHASE 1 MBBS SCHEME OF EXAMINATION

Table 1: Summative assessment-Anatomy Examination components, and Distribution of Marks

PHASE I UNIVERSITY EXAMINATION (in September every year)	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II) of 80 marks each $2 \times 80 = 160$
Multiple choice questions	$1 \times 20 = 20$ each in (Paper I and Paper II) $2 \times 20 = 40$
Total theory marks	200
PRACTICAL	
Practical exam	80
Viva- voce	20
Total practical	100

TOTAL MARKS - PHASE I UNIVERSITY EXAMINATION (in September every year)	
THEORY	
	ANATOMY
Written Theory Paper	160
Multiple choice questions	40
Total theory marks	200
PRACTICAL	
Practical exam	80
Viva- voce	20
Total practical	100
Final Internal Assessment*	100
TOTAL MARKS	400

- Final IA marks will be average of 3 IA exams

$$\text{Final Internal Assessment marks*} = \left(\frac{\text{Average of marks obtained in 3 IA} + \frac{\text{Sum of all unit tests, E Tests}}{\text{Total marks}}}{300} \right) = \text{Reduced to } 100 \text{ marks}$$

OR

- Final IA marks include average of best of 3 IA exams but pre University/pre final exam is mandatory
- Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria.

INTERNAL ASSESSMENT

- Regular periodic examinations shall be conducted throughout the Phase 1 course. Day to day records and log book with required skill certifications should be given importance in internal assessment.
- Marks secured in class tests/unit tests, E-Tests, seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behavior are given weightage as part of formative assessment.
- There shall be three internal assessment examinations in each preclinical subject.
- An average of the marks scored in the three internal assessment examinations will be considered as the final internal assessment marks. OR average of best of 3 IA exams
- Students must secure at least 50% marks of the total marks (combined in theory & practical) assigned for Internal assessment to be declared successful at the final university examination of that subject.
- The third internal examination is the preliminary examination to be conducted on the lines of the university examination.
- The students should be made aware of the results of internal assessment.
- Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.
- Internal assessment marks (theory/practicals) will contribute for the eligibility criteria and pass criteria for university exam.
- Internal assessment marks will reflect under separate head in the marks card of the university examination.

Table 2: Internal assessment-Anatomy Examination components, and Distribution of Marks

THEORY	
Internal Assessment (Theory)	80
Multiple choice questions	1×20=20
Total theory marks	100
PRACTICAL	
Internal assessment (Practical)	60
Viva- voce	20
Formative assessment*	20
Total practical	100

Formative assessment* includes marks secured in seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behavior.

Blueprint for Formative assessment

Content	Marks
Seminar presentation/ participation in quizzes/ problem solving exercises	4 Marks (20%)
Log book maintenance, timely completion and submission	4 Marks (20%)
Record book maintenance, timely completion and submission	4 Marks (20%)
Professionalism and behavior	4 Marks (20%)
ECE and skill certification	4 Marks (20%)
Total Marks	20

Table 3: Type, number of questions and distribution of marks for 100 marks written theory paper

TYPES OF QUESTION	NUMBER OF QUESTIONS	MARKS FOR EACH QUESTION	Total marks
Multiple choice questions	20	1	20
Long essay	2	10	20
Short notes	9	5	45
Reasoning questions	5	3	15
Total marks			100

- **Long essay:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should be scenario based, single response with 4 options in answers.
- The competencies dealing mainly with skills and affective domains in each subject must be included.
- **Practical examination** to include the component of Objective Structured Practical Examination (OSPE) / Objective Structured Clinical Examination (OSCE)
- **Assessment of Early Clinical Exposure** should be included in formative as well as in internal assessment (Theory/Practical) in first phase subject-wise.
- There should be at least **one assessment based on direct observation of skills, attitudes and communication at all levels.**
- There should be at least one short question from **AETCOM** in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module. At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during

the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

Pass Criteria

- For declaration of pass in any subject in the University examination, a candidate shall pass in Theory, Practical/Clinical and Internal assessment examinations components separately
- **Internal Assessment:** 50% combined in theory and practical (not less than 40% in each in subjects that have two papers) for eligibility for appearing for University Examinations
- **University Examination:** Mandatory 50% marks in theory and practical (practical = practical/ clinical + viva) [theory=theory paper(s) only]
- A candidate not securing 50% marks in aggregate in Theory or Practical/Clinical examination + viva or internal assessment in a subject shall be declared to have failed in that subject and is required to appear for both Theory and Practical/Clinical again in the subsequent examination in that subject.

UNIVERSITY EXAMINATIONS

TABLE SHOWIN SCHEME FOR CALCULATION OF UNIVERSITY EXAMINATION MARKS

Theory (maximum marks)		Practical (maximum marks)	
Paper 1	100 marks	<u>Gross Anatomy</u>	
		i. Spotters(10x2)	20 marks
		ii. Window Discussion 1(above diaphragm)	7.5 marks
		iii. Window discussion 2(below diaphragm)	7.5 marks
		iv. Surface Marking	05 marks
		Total	40 Marks
Paper 2	100 marks	<u>Histology</u>	
		i. Spotters (10X1)	10 marks
		ii. Slide discussion 1 (general histology)	05 marks
		iii. Slide discussion 2 (systemic histology)	05 marks
		Total	20 Marks
TOTAL	200 marks	<u>Viva- voce</u>	
		i. Osteology	10 marks
		ii. Gross Specimens	10 marks
		iii. Radiological anatomy	10 marks
		iv. Embryology	10 marks
		Total	40 Marks
		TOTAL	100 Marks

- University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact.
- Assessment shall be carried out on an objective basis to the extent possible.
- Nature of questions will include different types such as structured essays, modified essays (case based), short essays and short answers questions (and also reasoning type questions).
- The objective will be to assess proficiency and skills to identify key structures (on cadavers, dry bones histology slides and genetics charts, radiographs and embryology models), demonstrate surface marking and movements at joints, with functional and clinical correlations.
- Viva/oral examination should assess the student's ability to explain key concepts with functional and Clinical correlates related to osteology, embryology, surface marking and radiological anatomy.

Practical

Gross anatomy

- There will be 10 spotters each of two marks and two window discussions for 7.5 marks each.
- The spotters should be from the following regions:
 - Neuroanatomy – 1
 - Head and neck – 2
 - Thorax – 1
 - Upper limb – 2
 - Abdomen & Pelvis – 2
 - Lower limb – 2
- There will be a subdivision of the spotters as follows:
 - Artery - 1
 - Vein – 1
 - Nerve – 1
 - Muscle – 1
 - Connective tissue structure - 1
 - Bone – 1
 - Organ – 1
 - Cross section - 1
 - Picture based clinical cases (eg. Erb's palsy, foot drop etc.) - 2
- The window discussions will be one from the above diaphragm structures and one from the below diaphragm structures. It is advised that musculo- skeletal window discussions be combined with organs. A combination of two musculo- skeletal structures or two organs is to be avoided.
- For the window discussions, the students should first be asked to identify key structures, questioned further on these structures and then asked about important clinical applications.
- The marking scheme for window discussions could be as follows:
 - Identifies key structures – maximum 3 marks
 - Answers questions related to these structures – maximum 3 marks
 - Clinical applications – maximum 1.5 marks

Histology

- There will be 10 spotters each of one mark and two slide discussions for 5 marks each.
- Of the 10 spotters, four must be from general histology, five from systemic histology and one genetics chart.
- For the slide discussion, one slide must be from general histology and one from systemic histology.

Question paper layouts for theory examinations

PAPER 1 – 100 Marks

Multiple Choice Questions

1 x 20 = 20

Long Essay:

2x 10 = 20

1	Upper limb
2	Head and neck
3	Upper limb
4	Thorax including diaphragm
5	Thorax including diaphragm
6	Thorax including diaphragm
7	Head and neck
8	Head and neck
9	Neuroanatomy
10	General Embryology
11	General histology

Short Essays:

5x 9 = 45

Short Answers:

3x5 = 15

13	Upper limb
14	Thorax including diaphragm
15	Head and neck
16	General Anatomy
17	General embryology

PAPER II – 100 Marks

Multiple Choice Questions
Long Essay:

1x20 = 20
2x 10 = 20

1	Lower limb
2	Abdomen/Pelvis
3	Lower limb
4	Lower limb
5	Abdomen
6	Abdomen
7	Pelvis
8	Pelvis
9	Perineum
10	Systemic histology
11	Systemic embryology

Short Essays:

5x 9 = 45

Short Answers:

3x5 = 15

12	Lower limb
13	Abdomen/Pelvis
14	Systemic histology
15	Genetics
16	Systemic embryology

UNIVERSITY EXAMINATIONS

SCHEME FOR CALCULATION OF UNIVERSITY EXAMINATION MARKS

Theory (maximum marks)		Practical (maximum marks)	
Paper 1	100 marks	<u>Gross Anatomy</u>	
		v. Spotters(10x2)	20 marks
		vi. Window Discussion 1(above diaphragm)	15 marks
		vii. Window discussion 2(below diaphragm)	15 marks
		Total	50 Marks
Paper 2	100 marks	<u>Histology</u>	
		iv. Spotters (10X1)	10 marks
		v. Slide discussion 1 (General histology)	10 marks
		vi. Slide discussion 2 (systemic histology)	10 marks
		Total	30 Marks
		Practical	80 marks
TOTAL	200 marks	<u>Viva- voce</u>	
		v. Osteology	5 marks
		vi. Surface marking	5 marks
		vii. Radiological anatomy	5 marks
		viii. Embryology	5 marks
		Total	20 Marks
		TOTAL	100 Marks

UNIVERSITY EXAMINATIONS

EXISTING (OLD) SCHEME FOR CALCULATION OF UNIVERSITY EXAMINATION MARKS

Theory (maximum marks)		Practical (maximum marks)	
Paper 1	100 marks	<u>Gross Anatomy</u>	
		viii. Spotters(10x2)	20 marks
		ix. Window Discussion 1(above diaphragm)	10 marks
		x. Window discussion 2(below diaphragm)	10 marks
		xi. Surface Marking	10 marks
		Total	50 Marks
Paper 2	100 marks	<u>Histology</u>	
		vii. Spotters (10X1)	10 marks
		viii. Slide discussion 1 (general histology)	10 marks
		ix. Slide discussion 2 (systemic histology)	10 marks
		Total	30 Marks
TOTAL	200 marks	<u>Viva- voce</u>	
		ix. Osteology	5 marks
		x. Gross Specimens	5 marks
		xi. Radiological anatomy	5 marks
		xii. Embryology	5 marks
		Total	20 Marks
		TOTAL	100 Marks

TOPIC WISE WEIGHTAGE OF MARKS IN THEORY PAPER

PAPER – I – 100 Marks

MCQ' s	- 20
Upper limb	-18
Head & neck	-23
Thorax including diaphragm	- 18
Neuroanatomy	-05
General embryology	- 08
General Histology	- 05
General Anatomy	-03

PAPER – II – 100 Marks

MCQ's	- 20
Lower limb	-23
Abdomen & pelvis	-13
Abdomen	- 10
Pelvis	-10
Perineum	- 05
Systemic Histology	- 08
Systemic embryology	-08
Genetics	-03

List of books suggested to students

I. GENERAL ANATOMY

1. General Anatomy By Vishram Singh

II. GROSS ANATOMY

1. Text Book of Anatomy by Vishram Singh, 3rd Edition
 - a) Upper limb & thorax
 - b) Abdomen & Lower limb
 - c) Head & Neck

III. NEURO ANATOMY

1. Text book of Neuro Anatomy by Vishram Singh, 3rd Edition

IV. EMBRYOLOGY

1. Clinical Embryology by Vishram Singh (2nd Edition 2014)

V. HISTOLOGY

1. Histology Text & Atlas (2nd Ed.) by *Brijesh Kumar*

VI. DISSECTION

1. Gray's Dissector of the Human Body (South Asian Edition)

VII. GENETIC BOOK

1. Human Genetics S.D Gangane

VIII. REFERENCE BOOK

1. Grays Anatomy for students - By Richard L Drake
2. Clinical anatomy by Neeta V Kulakarni 3rd Edition Vol I, II
3. Clinical & Surgical Anatomy, Vishram Singh, 2nd Edition.
4. Clinical Anatomy by regions - by Richard S.Snell
5. Clinically Oriented Anatomy - by Keith L Moore

Physiology

Goal:

The broad goal of teaching Physiology to undergraduate students aims at providing the student with comprehensive knowledge of the normal functioning of the organ systems of the human body to facilitate an understanding of the physiological basis of health and disease.

Objectives

A. Knowledge: At the end of the course the student will be able to

1. Explain the normal functioning of all the organ systems and their interactions for well-coordinated total body function;
2. Assess the relative contribution of each organ system to the maintenance of the milieu interior;
3. Elucidate the physiological aspects pertaining to normal growth and development;
4. Describe the physiological response and adaptations to environmental stresses
5. List the physiological principles underlying pathogenesis and treatment of disease.

B. Skills: At the end of the course the student will be able to:

1. Conduct experiments designed for study of physiological phenomena;
2. Interpret experimental/ investigative data
3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory

C. Attitude, Ethics and communication skills:

At the end of the course the student will be able to:

1. Show due respect to persons who volunteer to be examined for the purpose of learning clinical examination.
2. Communicate effectively with peers and teachers
3. Demonstrate the ability of teamwork
4. Demonstrate the behaviour of confidence, sincerity, responsibility, dependability, honesty, ethics and appearance central to professional characteristics

D. Integration: At the end of the course the student will be able to:

1. Integrate the different organ structure, function and its regulatory mechanisms.
2. Perceive different chunks of knowledge as an amalgamated entity allowing the ability to understand its basis and application.

E. Alignment: At the end of the course student should be able to:

Understand the concepts aligned at horizontal level.

F. Early Clinical Exposure: At the end of the course the student will be able to:

1. Appreciate the relevance of basic science in the context of diagnosis, treatment and patient care
2. Provides the basis for deeply ingraining the basic science learning
3. Recognize the importance of attitude, ethics and communication as integral to doctor-patient relationship
4. Relate the socio-cultural context of disease with medical humanities

LIST OF SYSTEMS INCLUDED IN PHYSIOLOGY:

- General Physiology
- Hematology
- Nerve-Muscle Physiology
- Gastro-Intestinal Physiology
- Cardiovascular physiology
- Respiratory physiology
- Renal Physiology
- Endocrine Physiology
- Reproductive Physiology
- Central Nervous System
- Special Senses
- Integrated Physiology

COURSE CONTENT WITH COMPETENCIES

THEORY

Topic	Competency Number	Hours Allotted
<p>General Physiology</p> <ul style="list-style-type: none"> • Structure and functions of a mammalian cell • Homeostasis • Intercellular communication • Apoptosis • Transport mechanisms across cell membranes • Fluid compartments of the body • pH & Buffer systems in the body • Evaluation of functions of the cells and products in clinical care and research 	PY 1.1 - 1.9	8 hrs
<p>Hematology</p> <ul style="list-style-type: none"> • Components of blood: formation, regulation and functions • plasma proteins – origin, types, variations and functions • Hemoglobin- synthesis, variants, functions and its breakdown & Jaundice • Blood indices • Anemia and its classification • Hemostasis: mechanism, regulation & disorders • Anticoagulants • Blood groups, blood banking and transfusion • Immunity: types, mechanism & regulation • ESR, PCV • Lymph-composition, circulation and functions 	PY 2.1 - 2.13	16 hrs
<p>Nerve & Muscle Physiology</p> <ul style="list-style-type: none"> • Neuron and neuroglia: structures, types, functions; • Resting membrane potential • Action potential in nerve, skeletal & smooth muscle • Nerve fibres: classification, functions & properties • Nerve injuries, degeneration and regeneration in peripheral 	PY 3.1 - 3.18	10hrs

<p>nerve</p> <ul style="list-style-type: none"> • Neuromuscular junction: structure, transmission of impulses, neuro-muscular blocking agents, Myasthenia gravis • Muscle fibres: structure, types & functions • Muscle contraction: molecular basis (skeletal, smooth), • Isotonic Vs. Isometric, Energy sources and metabolism, gradation of muscle activity • Muscle dystrophy, Myopathies • Strength-duration curve 		
<p>Gastrointestinal Physiology</p> <ul style="list-style-type: none"> • Functional anatomy and broad functions of digestive system, enteric nervous system • GI Secretions- composition, mechanism of secretion, functions and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion • GI movements- types, regulation, functions, reflexes • Role of dietary fibres • Digestion and absorption of nutrients • GI hormones- source, regulation, functions • Gut-brain axis • Structure and functions of liver and gall bladder • Gastric function tests, pancreatic exocrine function tests & liver function tests • Pathophysiology - Achalasia cardia, peptic ulcer, gastro oesophageal reflux disease, vomiting diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease 	PY 4.1 - 4.10	10hrs
<p>Cardiovascular Physiology</p> <ul style="list-style-type: none"> • Functional anatomy of heart • Pacemaker tissue and conducting system- generation, conduction of cardiac impulse • Properties of cardiac muscle • Cardiac cycle 	PY 5.1 - 5.16	25hrs

<ul style="list-style-type: none"> • ECG- recording, normal ECG, uses, cardiac axis, Abnormal ECG in common arrhythmias, changes with hypertrophy & MI • Haemodynamics • Heart rate- factors affecting, regulation • Cardiac output- factors, regulation, measurement • Blood pressure- components, determinants, factors, regulation and applied aspect • Regional circulation- autoregulation, microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, fetal, pulmonary and splanchnic circulation • Pathophysiology: shock, syncope, heart failure & coronary artery disease 		
<p>Respiratory Physiology</p> <ul style="list-style-type: none"> • Functional anatomy of respiratory tract, dead space • Mechanics of respiration • Pressure volume changes during ventilation • Lung volume and capacities • Alveolar surface tension • Compliance • Airway resistance • Alveolar ventilation, V/P ratio • Diffusion capacity of lungs • Transport of respiratory gases- Oxygen and Carbon dioxide • Neural and chemical regulation of respiration • Physiology of high altitude and deep sea diving • Principles of artificial respiration, oxygen therapy • Pathophysiology of dyspnoea, hypoxia, cyanosis, asphyxia, drowning, periodic breathing • Lung function tests & its clinical significance 	PY 6.1-6.10	12hrs
<p>Renal Physiology</p> <ul style="list-style-type: none"> • Structure and functions of kidney & juxta glomerular apparatus, role of renin-angiotensin system 	PY 7.1 - 7.9	10hrs

<ul style="list-style-type: none"> • Renal blood flow • Mechanism of urine formation, concentration and diluting mechanism • Concept and significance of ‘clearance’ tests; Renal regulation of fluid and electrolytes & acid-base balance • Structure and innervation of urinary bladder, physiology of micturition, cystometry, and its abnormalities • Artificial kidney(dialysis) and renal transplantation • Renal Function Tests 		
<p>Endocrine Physiology</p> <ul style="list-style-type: none"> • Mechanism of action of steroid, protein and amine hormones • Synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus • Physiology of bone and calcium metabolism • Physiology of growth • Physiology of Thymus & Pineal Gland • Hormone function tests • Obesity & metabolic syndrome • Stress response 	PY 8.1 - 8.6	16 hrs
<p>Reproductive Physiology</p> <ul style="list-style-type: none"> • Sex determination, Sex differentiation and their abnormalities • Puberty: onset, progression, stages • Early and delayed puberty • Male reproductive system: functions of testis, spermatogenesis and its regulation, cryptorchidism • Female reproductive system functions of ovary and its control, menstrual cycle: Hormonal, uterine and ovarian changes • Tests for ovulation 	PY 9.1 - 9.12	10hrs

<ul style="list-style-type: none"> • Physiological effects of sex hormones • Contraceptive methods for male and female • Effects of removal of gonads on physiological functions • Physiology of pregnancy, fetoplacental unit, pregnancy tests, parturition & lactation • Semen analysis • Causes and principles of management of infertility • Hormonal changes and their effects during perimenopause and menopause • Psychological and psychiatric disturbances associated with reproductive physiology 		
<p>Central Nervous System</p> <ul style="list-style-type: none"> • Organization of nervous system • Sensory system: types, functions and properties of synapse, receptors, reflex • Somatic sensations & sensory tracts • Physiology of pain • Motor system: organization, motor tracts, mechanism of maintenance of tone, control of voluntary movements • Posture and equilibrium & vestibular apparatus • Reticular activating system • Autonomic nervous system • Spinal cord: functional organization and lesions • Formation, circulation and function of CSF • Blood brain barrier • Neurotransmitters • Organization, connections and functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities • Higher mental functions • Physiology of sleep, memory, learning and speech and their disorders 	<p>PY 10.1 - 10.12</p>	<p>30 hrs</p>

<ul style="list-style-type: none"> • EEG 		
<p>Special senses</p> <ul style="list-style-type: none"> • Smell and taste sensation and their abnormalities • Functional anatomy of ear and auditory pathways & physiology of hearing, Deafness, hearing tests • Functional anatomy of eye, Image formation, Visual pathway and its lesions, Physiology of vision including acuity of vision, colour vision, field of vision, refractive errors, physiology of pupil, light reflex, accommodation reflex, dark and light adaptation • Auditory & visual evoked potentials 	<p>PY 10.13 – 10.20</p>	<p>10 hrs</p>
<p>Integrated Physiology</p> <ul style="list-style-type: none"> • Temperature regulation: mechanism, adaptation to altered temperature (heat and cold environment), mechanism of fever, cold injuries and heat stroke • Exercise- cardio-respiratory and metabolic adjustments during exercise (isotonic and isometric), exercise in heat and cold, physical training effects • Physiological consequences of sedentary lifestyle • Brain death • Physiology of Infancy • Physiology of aging-free radicals and antioxidants • Physiology of meditation • Gene therapy • Yoga Physiology • Sports Physiology • Stem cell Physiology 	<p>PY 11.1 - 11.14</p>	<p>6 + 4 hrs</p>

PRACTICAL

Sl. No.	Procedures to be performed by the students:	
a.	Haematology	Competency Number
	RBC count WBC Count Differential Leucocyte Count Estimation of haemoglobin Blood grouping Bleeding time Clotting time Calculate RBC indices - MCV, MCH, MCHC.	PY2.11
b.	Human experiments	
	Spirometry - Lung volumes and capacities, MVV and Dyspnoeic Index, Timed vital capacity.	PY 6.8
	Peak Expiratory Flow Rate	PY 6.10
	Mosso's ergography	PY 3.14
	Stethography using digital physiograph	PY 6.7
	Pulse tracing using digital physiograph	PY5.16
	Examination of radial pulse	PY 5.12
	Blood Pressure at rest, effect of posture & exercise	
	Determine cardiac efficiency using Harvard step test	PY 3.16
	Record 12 lead ECG. Calculate heart rate, PR interval and comment on rhythm using Lead II ECG	PY 5.13
	Examine the sympathetic reactivity using hand grip dynamometer	PY 5.14
	Demonstrate Basic Life Support in a simulated environment	PY 11.14
	Visual field by Perimetry	PY 10.20
c.	Clinical Examination	
	Components of history taking and general physical examination	PY 11.13

	Examination of Cardiovascular system	PY 5.15
	Examination of Respiratory system	PY 6.9
	Examination of abdomen	PY 4.10
	Examination of Higher mental functions	PY 10.11
	Examination of Sensory system	
	Examination of Motor system including reflexes	
	Examination of Cranial Nerves	PY 10.11, 10.20
d.	Procedure for Demonstrations	
	Erythrocyte sedimentation rate	PY 2.12
	Haematocrit	
	Osmotic fragility	
	Reticulocyte count	PY2.13
	Platelet count	
	Computerized spirometry including FVC, MVV, SVC	PY 6.8
e.	Interpretation Clinical case histories, Charts, Problems	
f.	Computer assisted learning Amphibian nerve - muscle experiments and interpretation of graphs List of graphs on nerve-muscle experiments: <ul style="list-style-type: none"> • Simple muscle twitch • Effect of various strengths of stimuli on Simple muscle twitch • Effect of changes in temperature on Simple muscle twitch • Effect of two successive stimuli on muscle contraction • Effect of multiple successive stimuli (treppe, clonus, tetanus) • Study of fatigue in skeletal muscle • Velocity of nerve conduction • Effect of load on muscle • Measurement of isometric contractions using nerve muscle preparation 	PY 3.18

g.	Amphibian cardiac experiments and interpretation of graphs List of graphs on cardiac experiments: <ul style="list-style-type: none">• Normal cardiogram• Effect of temperature on frog heart• Effect of Stannius ligatures• Properties of cardiac muscle – all or none law, staircase effect, refractory period in a beating heart (extrasystole and compensatory pause), refractory period in a quiescent heart• Effect of vagus on frog's heart• Action of drugs on vagus (nicotine and atropine)• Perfusion of isolated heart and effect of ions (NaCl, KCl, CaCl₂)• Perfusion of isolated heart and effect of drugs (adrenaline, acetyl choline, atropine followed by Ach)	PY 3.18
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SKILL CERTIFICATION:

The list of certifiable skills is given below. The general instructions, blank template, samples of certification checklist suggested for skill certification are provided as **Annexure - I**

List of certifiable skills:

Competency number	Skill
PY5.12	Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment
PY5.15	Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment
PY6.9	Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment
PY10.20	Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment

EARLY CLINICAL EXPOSURE:

ECE Setting	Topic for ECE
Classroom	<ul style="list-style-type: none">➤ RS disorders-Cases of COPD➤ Endocrine abnormalities-Myxoedema, Thyrotoxicosis, Goitre, Cushing' syndrome, CNS disorders➤ Myocardial infarction➤ Renal failure➤ Reproductive hormonal imbalance➤ Stroke➤ Parkinson's disease

Hospital	<ul style="list-style-type: none"> ➤ Anemia ➤ CVS disorders-Valvular disorders, Cardiac failure, JVP, Murmurs, Hypertension
Hospital / Classroom	<ul style="list-style-type: none"> ➤ Oedema ➤ Goitre ➤ Renal disorders- Nephrotic syndrome, Renal failure, Renal dialysis ➤ Diabetes mellitus ➤ Jaundice ➤ Nutritional disorders ➤ Ophthalmology, ENT examination and related disorders

Simulation based Integrated Early clinical exposure with Phase I Departments (at Advance Comprehensive Clinical Training and Simulation Centre ACTS-YEN, Yenepoya (deemed to be University))

- Respiratory System
 - Cardiovascular System
 - Abdomen
 - Thyroid gland
 - CNS
- **Basic science correlations: 18 hours**
Discussion based on case vignettes, graphs, clinical videos, patient in Classroom settings, etc linked to various systems in Physiology.
 - **Clinical visits: 12 hours** (Suggested format for assessing participation in ECE Sessions is provided as **Annexure-II**)

LOGBOOK:

Logbook has a record of the progression of the learner documenting the acquisition of the requisite knowledge, skills, attitude and/or competencies. (**Annexure- III**)

TEACHING HOURS AND METHODS:

Method	Hours
Interactive lectures	160
Small group teaching/tutorials/integrated learning/practical	310
Self directed learning	25
Early clinical exposure	30
Total	525

ATTENDANCE:

- Attendance requirements are 75% in theory and 80% in practical for eligibility to appear for the examinations in Anatomy, Physiology and Biochemistry subjects. In subjects that are taught in more than one phase (In phase 1, Community Medicine) – the learner must have 75% attendance in theory and 80% in practical in each phase of instruction in that subject.
- The Foundation Course will have compulsory 75% attendance. This will be certified by the Dean, YMC. Biometric attendance of the students has been captured by the IT department from the day the student has joined the course which will be shared soon with your office.
- 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in Phase 1. Biometric attendance of the students attending these classes has been captured by the IT which will be shared soon with your office.

INTERNAL ASSESSMENT:

- Students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40% marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject.
- When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment. (Accordingly, first internal assessment has been conducted in Community Medicine)
- Internal assessment marks will reflect as separate head of passing at the summative examination.

Table 1: Internal Assessment (IA) components and distribution of marks

THEORY			
	I IA	II IA	III IA
Theory	80	80	80
Multiple choice questions	1×20=20	1×20=20	1×20=20
Total theory marks	100	100	100
PRACTICAL			
Practical	60	60	60
Viva-voce	20	20	20
Formative assessment*	20	20	20
Total practical marks	100	100	100

*Formative assessment includes marks secured in seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behaviour.

Blueprint for Formative assessment

Content	Marks
Seminar presentation/ participation in quizzes/ problem solving exercises	4 marks (20%)
Log book maintenance, timely completion and submission	4 marks (20%)
Record book maintenance, timely completion and submission	4 marks (20%)
Professionalism and behaviour	4 marks (20%)
Early clinical exposure and skill certification	4 marks (20%)
Total Marks	20

Table 2: Type, number of questions and distribution of marks for 100 marks written theory paper

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS FOR EACH QUESTION	TOTAL MARKS
Multiple choice questions	20	1	20
Long essay questions	2	10	20
Short notes	9	5	45
Reasoning questions/ Short Answers	5	3	15
Total marks			100

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/ Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should include scenario based, single response with 4 options in answers.
- The competencies dealing mainly with skills and affective domains in each subject must be included.

- **Practical examination** to include the component of Objective Structured Practical Examination (OSPE) / Objective Structured Clinical Examination (OSCE)
- **Assessment of Early Clinical Exposure** should be included in formative as well as in internal assessment (Theory/Practical) in first phase subject-wise.
- There should be at least **one assessment based on direct observation of skills, attitudes and communication at all levels.**
- There should be at least one short question from **AETCOM** in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module. At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

UNIVERSITY EXAMINATION:

- Mandatory 50% marks separately in theory and practical (practical = practical + viva)
- In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.
- Nature of questions will include structured essays (Long Answer Questions- LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). MCQs shall be accorded a weightage of not more than 20% of the total theory marks.
- We will be following 2 LAQs of 10 marks each, 9 Short Notes of 5 marks each, 5 Reasoning Questions/SAQs of 3 marks each and 20 Multiple Choice Questions (MCQs) of 1 mark each for 100 marks question paper.

PHASE 1 MBBS SCHEME OF UNIVERSITY EXAMINATION

Table 1: Summative assessment examination components and distribution of marks

PHASE I UNIVERSITY EXAMINATION (in September every year)	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II) of 80 marks each $2 \times 80 = 160$
Multiple Choice Questions (MCQ)	$1 \times 20 = 20$ each in Paper I and Paper II
Total theory marks	200
PRACTICAL	
Practical exam	80
Viva-voce	20
Total practical	100
Final Internal Assessment*	100
TOTAL MARKS	400

*Final IA marks will be calculated as follows:

$$\text{Final Internal Assessment marks*} = \left(\frac{\text{Marks obtained in 3 IA Theory and practical} + \text{Sum of marks secured in all unit tests, E Tests}}{\text{600 (200} \times 3) \text{ Total marks}} \right) = \text{Converted to 100 marks}$$

- Pre University/pre final exam is mandatory
- Pre University/pre final exam will be conducted after III Internal assessment and will be in line with the University examination
- Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria.

Summative Theory Examination - 200 marks

Table 2: Marks distribution for theory question paper (Includes MCQs)

Paper 1 (Max 100 marks)	
Topics	Marks Allocated
General Physiology	05
Hematology	20
Cardiovascular Physiology	25
Respiratory Physiology	20
Gastrointestinal Physiology	15
Renal Physiology	15

Paper 2 (Max 100 marks)	
Topics	Marks Allocated
Nerve and muscle Physiology	12
Endocrine physiology	20
Reproductive physiology	15
Central nervous system	35
Special senses	10
Integrated Physiology	08

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short Notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should be single response with 4 options in answers. It should include scenario based MCQs. Avoid one liner and negative terms in the stem of the question. Avoid ‘all of above’ and ‘none of above’ in the options.

Summative Practical Examination: 80 Marks

- There will be four practical sessions, each carrying 20 marks.

Table 3: The distribution of content and marks for the practical examination

Practical I: (20 marks)	<p>Haematology Major-15 Marks</p> <ul style="list-style-type: none"> • RBC count • WBC count • Making a peripheral smear + DLC <p>Haematology Minor-5 Marks</p> <ul style="list-style-type: none"> • Hb • BT • CT • Blood group
Practical II: (20 marks)	<p>Human experiments-15 Marks</p> <ul style="list-style-type: none"> • Mosso’s ergography • Effect of posture / exercise on BP and Pulse rate • Estimate fitness using the Harvard step test • Record and interpret Lead II ECG • Respiratory movements by Stethography • Spirometry and PEFr

	<ul style="list-style-type: none"> • Perimetry • Demonstrate BLS Amphibian charts (nerve muscle/cardiac): 5 marks
Practical III: (20 marks)	Clinical examination- I - 15 Marks OSCE (CVS / RS/General physical examination/Abdomen examination) Clinical case history/Charts: 5marks
Practical IV: (20 marks)	Clinical examination - II – 15 Marks OSCE CNS–Examination of Sensory system/ Motor system/Reflexes /Cranial nerve/ Higher mental function test Clinical problems: 5 marks

- The competencies dealing mainly with skills and affective domains in each subject must be included.

Viva-Voce Examination: 20 Marks

- The viva-voce examination shall carry 20 marks and all examiners will conduct the examination.
- Viva should focus on application and interpretation.
- Viva marks to be added to practicals and not theory.
- Portions of Paper I - 10 Marks; Portions of Paper II - 10 Marks

CRITERIA FOR PASSING IN PHYSIOLOGY:

- A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in Physiology.

The above guidelines from the Graduate Medical Education (Amendment), 2019 Gazetted document are incorporated into CBME Curriculum of Phase 1 MBBS from the academic year 2019-2020.

SUGGESTED TEXT BOOKS

Note: A single text book may not cover the entire curriculum.

Referring to more than one book is recommended.

TEXT BOOKS (latest editions)

Reference books for Theory:

1. Guyton and Hall. Text book of Medical Physiology. South Asian edition. Mario Vaz, Anura Kurpad, Tony Raj.
2. Ganong's Review of Medical Physiology.
3. Vander's Human Physiology.
4. Berne and Levy Physiology. BM Koeppen, BA Stanton
5. Human Physiology. Lauralee Sherwood.
6. Principles of Medical Physiology. Sabyasachi Sircar
7. Text book of Medical Physiology. Indu Khurana
8. Text book of medical physiology. G K Pal. –

Reference books for Practicals:

1. McLeod's Clinical Examination
2. Hutchison's Clinical Methods.
3. Text book of practical physiology. GK Pal and Pravati Pal
4. A textbook of Practical Physiology. CL Ghai

References:

- Regulations on Graduate Medical Education (Amendment), 2019- Gazette of India No. MCI-34(41)/2019-Med./161726, 4th November, 2019.
- Competency Based Assessment Module for Undergraduate Medical Education 2019
https://www.mciindia.org/CMS/wp-content/uploads/2020/01/Module_Competence_based_02.09.2019.pdf

ANNEXURE – I

SKILL CERTIFICATION

General instructions:

- There are 13 skills that need to be certified in Physiology
- These skills will be tested in normal, healthy volunteers or simulated environment
- The focus will be on whether students perform the procedures correctly
- Since these are skills that need to be recertified at the end of clinical training, this certification is a “**First level Certification**”

Role of the certifier:

- Observe the student perform the skill without any prompting or interference
- At the end of the assessment ask the specific questions that need to be asked (based on the skill checklist)
- Grade the student (A, B, C, D – see below)
- Give feedback to the student on the errors, if any, at the end of the skill assessment.
- Fill in the Certification Sheet

Assessment:

Professional conduct and communication:

- Is the student adequately groomed
- Does the student introduce him/herself, greet the subject and obtain consent?
- Does the student use the hand sanitizer?
- Does the student give clear instructions to the subject?
- Does the student thank the subject?
- Does the student use the hand sanitizer at the end of the session?

Skill specific assessment:

- Has the student conducted the given assessment completely?
- Has the student conducted the given assessment correctly?
- (for the above two points please refer to the checklist for the specific skill)
- How do you rate the student for this session?

Grade	Explanation of Grade	Action to be taken
A	Student has performed the assessment without any	Can be certified for skill

	error	
B	Student has performed the assessment with minor errors that need to be rectified	Re-assessment for parts that have been performed incorrectly
C	Student has performed the assessment with major errors	Re-assessment of the whole skill
D	Student has not been able to perform the assessment	Re-assessment of the whole skill

(Note: columns for 'number of attempts' can be added in the template attached below)

SKILL CERTIFICATION TEMPLATE:

Name of Student:

Phase of MBBS:

Subject:

Skill:

Competency Number:

Grading of Student (please circle the appropriate letter – A, B, C, D)

A	Student has performed the assessment without any error
B	Student has performed the assessment with minor errors that need to be rectified
C	Student has performed the assessment with major errors
D	Student has not been able to perform the assessment

SKILL CHECKLIST

Satisfactory (), Unsatisfactory ()

Steps	Attempt I Date:	Attempt II Date:	Attempt 'n'..... Date:
<ul style="list-style-type: none">• ..• ..• ..			
Grade			
Name and Signature of the assessor			
I have received detailed feedback on my performance including my Grade, the errors that I have committed and actions to be taken. (student's signature)			

Certifiers name and signature with date of certification:

Signature, Name and Roll No. of student:

ANNEXURE- II

Format for Assessing Participation in Early Clinical Exposure Sessions

Sl. No	Early Clinical Exposure Topic	Setting	Correlation	Date	Signature of the Teacher
		Classroom/ Hospital/ Community	Basic Science/ Clinical Skills		
1.					
2.					
3.					
4.					

REFLECTIONS

- What happened? (What did you learn from this experience)
- So what? (What are the applications of this learning)
- What next? (What knowledge or skills do you need to develop so that you can handle this type of situation?)

ANNEXURE – III

LOGBOOK

Section	Content	Page no.	Status	Signature of the Teacher
A.	Early Clinical Exposure (ECE)			
B.	Reflections on ECE			
C.	Self-Directed Learning, Seminars			
D.	Reflections on Self-Directed Learning			
E.	Projects, Quiz, competitions			
F.	Academic Conferences & Presentations			
G.	Yoga Sessions			
H.	Sports/Extra-curricular events			
I.	AETCOM Sessions			
J.	Reflections on AETCOM sessions			
K.	Attendance Records			
L.	Remedial classes			
M.	Formative Assessment			
N.	Professionalism			
O.	Internal Assessment Marks			
P.	Certifiable procedures and Skills			

Biochemistry

GOALS & OBJECTIVES

Goals

The knowledge acquired in Biochemistry should help the student to integrate molecular events with structure and function of human body in health and disease. Towards this, the departments would facilitate:

1. To enable students understand the scientific basis of life processes at the molecular level and orient them towards the application of knowledge acquired in solving clinical problems.
2. To acquire basic practical skills for biochemical investigations in order to support clinical diagnosis of common disorders in the community.

Objectives

A) KNOWLEDGE

At the end of the course, the student shall be able to:

1. Describe the cell organelles with their molecular and functional organisation.
2. Delineate structure, function and interrelationship of various biomolecules and consequences of deviation from normal.
3. Understand basic enzymology and emphasise on its clinical applications' wherein regulation of enzymatic activity is altered.
4. Describe digestion and assimilation of nutrients and consequences of malnutrition.
5. Describe and integrate metabolic pathways of various biomolecules with their regulatory mechanisms.
6. Explain the biochemical basis of inherited disorders with their associated sequelae.
7. Describe mechanisms involved in maintenance in water, electrolyte and acid base balance and consequences of their imbalances.

8. Outline the molecular mechanism of gene expression and regulation, basis principles of biotechnology and their applications in medicine.
9. Understand with basic immunology involving molecular concepts of body defence mechanisms and their applications in medicine.
10. Outline the biochemical basis of cancer and carcinogenesis.
11. To understand the principles of the various conventional and specialized laboratory investigations, instrumentation analysis and interpretation of the lab reports.
12. Suggest laboratory investigations to support theoretical concepts and clinical diagnosis.

B) Skills

1. To conduct conventional and selected special investigations relevant to clinical screening and diagnosis.
2. Analyse and interpret laboratory data.
3. Demonstrate skills for solving clinical problems to arrive at diagnosis using laboratory data.

C) Integration

The knowledge acquired in Biochemistry should help the students to integrate molecular events with structure and function of the human body in health and disease.

Theory Syllabus for MBBS CBME curriculum 2019-2020

Course content and Teaching hours

Curricular component	Time allotted in hours
Lectures	81
Small group teaching/tutorials/integrated learning/	70
Practical	80
Self - directed learning	20
Early clinical exposure (basic science correlation and clinical skills)	30
Total	281
AETCOM	09

Lecture hours (theory)=81hrs

1. Cell structure and Function (BI1.1) 1hr
 - Concept of prokaryotic and eukaryotic cell
 - Cell organelles – Structure, Biochemical functions, Marker enzymes
 - Cell Membrane - Fluid mosaic model, composition, Fluidity of membrane
 - Transport across cell membranes with examples
 - Cytoskeleton
 - Structure and functions of microtubules, actin filaments, intermediate filaments
 - Intercellular communication
 - Separation of cell organelles
 - Passive transport – Diffusion and facilitated transport (ion channels)
 - Active transport – Primary and Secondary
 - Endocytosis and Exocytosis

- 2 Chemistry of Carbohydrates (BI3.1) 2 hrs
 - Definition, Biomedical importance
 - Classification with examples
 - Monosaccharide derivatives – Uronic acids, aminosugars, Glycosides, Sorbitol, Mannitol and their Clinical significance.
 - Disaccharides, oligosaccharides composition, importance
 - Polysaccharides –Homopolysaccharides – Composition and Importance of starch, glycogen, Dextran, Cellulose and Inulin.
 - Heteropolysaccharides – Mucopolysaccharides (Composition and function)
Concept of glycation and glycosylation
 - Importance of Glycoproteins

3. Chemistry of lipids (BI4.1, BI11.24) 3 hrs
 - Definition, classification with examples. Biomedical importance of lipids
 - Fatty acids - Nomenclature and classification , Definition, examples, essential and non essential fatty acids and importance of Essential fatty acids, Mono and Polyunsaturated fatty acids, Trans-fatty acids.
 - Chemistry and functions of Triacylglycerol, Major phospholipids, Sphingolipids, cholesterol, Lipoproteins, eicosanoids.

- Respiratory distress syndrome
- Amphipathic lipids Definition, examples and importance, Liposomes

4. Chemistry of Proteins (BI5.1, BI5.2)

4 hrs

- Amino acids – Classification based on side chain properties, nutritional requirement metabolic fate
- Standard and non-standard amino acids
- Biologically important peptides
- Proteins – Definition, Classification based on chemical nature and solubility, functions, nutritional value
- Structural organisation of proteins (primary, secondary, super secondary structures/ motifs, domains, tertiary and quaternary structures)
- Bonds stabilizing protein structure
- Structure function relationship of proteins-haemoglobin, myoglobin, collagen and Insulin
- Denaturation - definition, causes, properties of a denatured protein, significance.
- Isoelectric pH
- Non-protein amino acids, Non-alpha amino acids, D-amino acids
- Plasma proteins

5. Chemistry of Nucleotides and Nucleic acids (BI7.1)

3hrs

- Nitrogenous bases: Purines and Pyrimidines (Major, Minor, Free Bases);
- Nucleosides and Nucleotides – Structure, examples, importance
- Nucleoside derivatives: NMP, NDP, NTP cAMP, SAM, PAPS, UDP sugars etc
- Synthetic Nucleotide Analogues and their application
- Structure and function of DNA (B-DNA)
- Structural organization of DNA to form chromatin (Primary and Secondary) Types of RNA (hnRNA, mRNA, rRNA, tRNA, snRNA) with structure and functions
- microRNA (miRNA) and small interfering RNA (siRNA) and their applications in medicine
- Different types of DNA
- Outline of cell cycle

6. Enzymes (BI2.1, BI2.3, BI2.4, BI2.5, BI2.6, BI2.7)

5hrs

- Enzymes Definition, General properties, IUBMB Classification. Coenzymes and Cofactors
- Mechanism of Enzyme action-Concept of activation energy, transition state, binding energy, active site; Substrate binding to active site-Koshlands Induced fit theory
- Factors affecting enzyme activity
- Effect of substrate concentration – Michaelis - Menton theory, Km value, Vmax and its significance (derivation not required)
- Enzyme specificity
- Enzyme inhibition Competitive and Non -competitive inhibition with examples of clinical importance
- Suicide inhibition
- Enzymes as toxins – Eg. Snake venom phospholipase
- Enzyme regulation
- Diagnostic and Therapeutic enzymes and enzyme based assays.

7. Haemoglobin structure and Heme metabolism (BI6.11, BI6.12, BI5.2, BI11.17)

4 hrs

- Structure and function of haemoglobin
- Hemoglobin – Adult, fetal and embryonic types
- Abnormal hemoglobins– carboxy, sulph, metHb.
- Hemoglobinopathies – molecular defects, pathophysiological changes in thalassemias and sickle cell anemia
- Heme – functions , Outline of Synthesis of heme, porphyrias
- Degradation of Heme, Bilirubin metabolism – synthesis, transport, conjugation, excretion
- Jaundice – definition, types, causes, lab diagnosis
- Congenital hyperbilirubinemias

8. Extracellular matrix (BI9.1, BI9.2, BI9.3)

2 hrs

- Composition of ECM – Proteins (Composition and functions of Collagen, elastin, fibrillin, fibronectin, laminin) and Proteoglycans.
- Involvement of ECM components in health and disease. Eg. Osteogenesis Imperfecta, Ehler Danlos syndrome etc

- Protein Targeting and sorting along with its associated disorders

9 Bioenergetics and Biological Oxidation (BI6.6) 2 hrs

Prerequisite: Bioenergetics – Laws of thermodynamics, Free energy, Exergonic and endergonic reactions, Chemical Coupling Redox pair, Redox potential.

- High Energy Compounds – Definition, Classification, biological significance. Transport of reducing equivalents across mitochondria
- Electron Transport Chain – Organization, components, flow of electrons.
- Oxidative Phosphorylation – Sites, mechanism (Chemiosmotic theory). Binding change mechanism of ATP synthesis by ATP synthase.
- Inhibitors of Electron Transport Chain and oxidative phosphorylation. Uncouplers and their significance.
- Brown adipose tissue significance.
- Structure and organization of ATP synthase complex.

10 Acid base balance and disorders (BI6.7, BI6.8, BI11.17) 3 hrs

- Introduction and definition, of pH, acids, bases buffers, Henderson –Hasselbalch equation, Buffer systems of body
- Regulation of pH of blood by buffers, respiratory and renal mechanisms. Anion gap and its significance
- Acidosis and alkalosis (metabolic and respiratory) – causes, compensatory mechanisms and lab findings.

11. Carbohydrate metabolism (BI3.2, BI3.3, BI3.4, BI3.5, BI3.6, BI3.7) 6hrs

- Processes involved in Digestion and absorption of carbohydrate and storage
- Glucose transporters
- Insulin dependent and Insulin independent uptake of glucose by tissues
- Pathways – Significance, Site, reactions, key steps, energetics, regulation, inhibitors and associated disorders of Glycolysis, Rapaport Leubering cycle and its significance
- Citric acid cycle, Amphibolic role, Anaplerotic reactions
- Gluconeogenesis, Cori's cycle
- Glycogenesis, Glycogenolysis, Glycogen storage disorders
- Significance of HMP shunt pathway and uronic acid pathway Glucose-6-Phosphate dehydrogenase

deficiency

- Other disorders associated with carbohydrate metabolism(eg: Hereditary fructose intolerance, Galactosemia, Lactose intolerance, pentosuria)

12. Blood Glucose homeostasis (BI3.8, BI3.9, BI6.1, BI3.10, BI11.17)

2 hrs

- Mechanisms and significance of blood glucose regulations
- Metabolic processes taking place in specific organs in the body in fed, fasting and exercise states.
- Metabolic changes during starvation
- Adipose tissue – Hormones secreted from adipose tissue (adipokines – leptin, adiponectin) their functions
- Diabetes mellitus – types, metabolic changes, complications.
- Guidelines for diagnosis of Diabetes mellitus
- Interpretations of lab results of Blood glucose, HbA1c. GTT and introduction to the term Inborn errors of metabolism

13. Metabolism of Lipids (BI4.2, BI4.3, BI4.4, BI4.5, BI4.6)

6 hrs

- Processes involved in Digestion and Absorption of dietary lipids and associated disorders (Steatorrhea) Pathways –key features of (Significance, Site, reactions, key steps, energetics, regulation, and associated disorders) of
- Biosynthesis and breakdown of triacylglycerol
- Outline of de novo synthesis of fatty acids
- Beta oxidation
- Ketogenesis, ketolysis
- Cholesterol biosynthesis upto mevalonate.
- Other types of Oxidation of fatty acids and associated disorders
- Lipoprotein metabolism Structure, Composition, Types, Functions, metabolism of Chylomicrons, VLDL, LDL, HDL
- Hypolipoproteinemias and Hyperlipoproteinemias
- Formation and functions of bile acids and bile salts
- Fatty liver and lipotropic factors
- Interpretation of laboratory results of analytes associated with lipid metabolism
- Biochemical basis of use of hypolipidemic and hypocholesterolemic drugs
- Eicosanoids- types and biomedical importance

- Therapeutic uses of Prostaglandins and inhibitors of eicosanoids

14. Metabolism of proteins (BI5.3, BI5.4, BI5.5, BI11.17)

5 hrs

- Processes involved in digestion and absorption of dietary proteins and associated disorders
- General reactions – Transamination, Transmethylation, Transdeamination, Deamination
Oxidative and nonoxidative and their significance.
- Biogenic amines
- Sources and fate of ammonia-Trapping, Transport and Disposal of ammonia, ammonia toxicity
- Urea cycle and its disorders
- Glycine – specialised products and their importance
- Phenylalanine, Tyrosine – metabolic pathway, synthesis of catecholamines.
- Other specialised products formed from tyrosine and their importance
Tryptophan synthesis of serotonin and melatonin and their importance
Carcinoid syndrome
- Sulphur containing amino acids – functions of cysteine, methionine synthesis of
SAM, SAH, Homocysteine
- Inborn errors of metabolism – enzyme defects, clinical features, laboratory diagnosis and
biochemical basis of management of – PKU, Tyrosinemia, Alkaptonuria, Albinism,
Homocystinuria, Maple syrup urine disease (MSUD) Important functions/products from
histidine.
- Branched chain amino acids
- Interpretation of lab results

15. Metabolism of Nucleotides (BI6.2, BI6.3, BI6.4)

4 hrs

- Sources of atoms of Purine and pyrimidine ring
- Outline of pathway of purine biosynthesis (de novo) and Salvage pathway
- Outline of pathway of purine catabolism and clinical significance of uric acid
- Outline of pathway of pyrimidine synthesis and breakdown
- Etiology, manifestations and biochemical basis of clinical manifestations of –
Hyperuricemia, Gout, LeschNyhan syndrome,

16. Function tests (BI6.13, BI6.14, BI6.15, BI11.17) 1 hrs
- Functions of Liver, Kidney
 - Liver Function Tests: Tests done commonly to assess liver functions based on Synthetic, Excretory functions enzyme markers of hepatocellular damage and obstruction.
 - Renal Function tests – Tests done commonly to assess glomerular function (in detail) and tubular function (just names of tests).
 - Disorders of liver and kidneys.
17. Function tests (BI6.14) 1hrs
- Common tests done for thyroid and adrenal gland function tests and associated disorders.
18. Nutrition (BI8.1, BI8.2, BI8.3, BI8.4, BI8.5) 4hrs
- Importance of various dietary components (Essential Nutrients) and dietary fibers
 - Energy content of food items
 - BMR – Definition, Normal values, Factors affecting and biomedical importance
 - SDA – Definition and significance (Thermogenic effect of food)
 - Balanced diet – definition, composition
 - Dietary fibers – definition, examples, importance
 - Nutritional importance of Carbohydrates, Lipids, Proteins, Vitamins and minerals, commonly used food items including fruits and vegetables.
 - Different types and causes of protein energy malnutrition and its effect
 - Dietary advices for optimal health in diabetes mellitus, coronary artery disease and in pregnancy
 - Causes, effect and health risk with being overweight/obese
19. Water and Electrolyte balance (BI 6.7) 1hr
- Regulation of water and electrolyte balance, disorder of electrolyte imbalance

20. Minerals (BI6.9, BI6.10)

4 hrs

- Major elements and trace elements
- Sources, RDA, absorption and transport, Homeostasis, Functions, Biological reference range, disorders associated with – Calcium, phosphorus, Iron
- Functions and disorders associated with Copper, Zinc, Selenium, Fluoride, Iodine, Magnesium, Molybdenum and Manganese.

21. Vitamins (BI6.5)

5 hrs

- Definition, difference between water and fat soluble vitamins
- RDA, Sources, Metabolism, Biochemical functions, Deficiency manifestations, Hypervitaminoses of Fat soluble vitamins (A,D,E,K), Water soluble vitamins Vitamin C, Folic acid, Vitamin B12, Thiamine, riboflavin, Niacin, Pyridoxine, Biotin, Pantothenic acid
- Antivitamins
- Lipoic acid

22 Oncogenesis and Immunity (BI10.1, BI10.2 10.3)

3 hrs

- Cell cycle, regulation, abnormal cell growth, programmed cell death (apoptosis) Cell signaling (action of hormones and growth factors) – Cell surface receptors G protein coupled signaling, steroid receptor signaling.
- Mutagens and carcinogens: Definitions, examples and their actions in carcinogenesis
- Protooncogenes and their activation, oncogenes, tumour suppressor genes and their role in development of cancer
- Tumour markers and their importance in diagnosis and prognosis of cancer
- Biochemical basis of cancer therapy – alkylating agents, antimetabolites, topoisomerase inhibitors, antibiotics, hormones, receptor blockers, radiotherapy etc
- Monoclonal antibodies and their application
- Immunology :Cellular and humoral components of the immune system, the types and structure of Ab, immune response , vaccine development

23. Biochemistry Laboratory tests/Automation and quality control (BI11.1, BI 11.19) 1hr

- Commonly used laboratory apparatus and equipments, good safe laboratory practice
- Basic Principles involved in functioning of instruments
- Automation advantages

- Quality control concepts (Internal and external quality control, precision, accuracy)
Specimen collection and Common preanalytical errors
- Biological reference intervals
- Critical alerts
- Ethics in Laboratory Medicine

24 Xenobiotics (BI7.5)

1 hr

Xenobiotics and disease caused. Biotransformation

- Phase –I reactions Oxidation
Hydroxylation Cytochrome 450
- Phase- II reactions
Conjugation reactions- Glucuronic acid, Glutathione, Glycine
- Other detoxification reactions reduction, hydrolysis, Acetylation, Methylation and reduction

25 Free Radicals and Antioxidant Defence systems (BI7.6, BI7.7)

2 hrs

- Free radicals, Reactive oxygen species (ROS), Reactive nitrogen species (RNS) Damaging effects of ROS on biomolecules, lipid peroxidation
- Antioxidant defence system of our body – enzymes, vitamins, metabolites as antioxidants
- Role of oxidative stress in atherosclerosis, diabetes mellitus and cancer

26 Molecular biology (BI7.2, BI7.3, BI7.4)

6 hrs

- Processes involved in DNA replication and inhibitors
- Processes involved in DNA repair mechanism and disorders
- Processes involved in Transcription and Translation mechanisms
- Gene mutations and basic mechanisms of regulation of gene expression
- Recombinant DNA technology, DNA cloning process and application
- PCR technique and its application
- Blotting techniques
- Concept, types and application of gene therapy.
- DNA Polymorphism, RFLP
- DNA genomic and cDNA libraries
- DNA Probes
- DNA Microarrays, Overview of Human Genome Project HGP

Suggested distribution of teaching hours

Sl No	Topic	Lectures (81)	Small group teaching/tutorials/integrated learning(70hrs)	Self - directed learning (20hrs)
1	Relevance of Biochemistry in Medicine			
2	Cell and organelles, Cell membrane, Transport across cell membranes	1	1	1
3	Enzymes	5	2	2
4	Chemistry of Carbohydrates	2	1	1
5	Carbohydrate metabolism	6	4	2
6	Chemistry of lipids	3	2	-
7	Lipid metabolism	6	4	2
8	Chemistry of amino acids and Proteins, Plasma proteins	4	2	1
9	Protein and amino acid metabolism	5	6	1
10	Metabolism and homeostasis	2	2	-
11	Biological Oxidation	2	2	1
12	Heme, haemoglobin-structure, metabolism	4	4	2
13	Extracellular matrix	2	-	-
14	Vitamins	5	4	2
15	Minerals	4	4	1
16	Chemistry of Nucleic acids	3	1	-
17	Nucleotide metabolism	4	4	-
18	Molecular Biology with Molecular biology Techniques and Gene therapy	6	8	1
19	Biochemistry of Cancer	2	1	-
20	Immunology	1	1	-
21	Nutrition and dietetics	4	4	1
22	Organ function tests	2	4	1
23	Acid base balance	3	5	-
24	Water and electrolyte balance	1	1	1
25	Free Radicals and Antioxidants	2	1	-
26	Xenobiotics and Detoxification	1	1	-
27	Clinical chemistry	1	1	-

List of Practicals for Ist phase MBBS -CBME

Total number of hours=80(40sessions of 2hrs each)

	PRACTICAL TOPIC	COMPETENCY
1	Introduction To Biochemistry-Lab Apparatus And Equipments	BI11.1
2	Introduction To Biochemistry-Good Safe Lab Practice And Waste Disposal	BI11.1
3	Preparation Of Buffers And Estimation Of pH	BI11.2
4	Colorimetry	BI11.6
5	Spectrophotometry	BI11.18
6	Estimation Of Total Protein And Albumin	BI11.8
7	Peotein Electrophoresis,Page	BI11.16
8	Autoanalyser	BI11.16
9	DNA Isolation From Blood Tissue	BI11.16
10	Estimation Of SGPT/SGOT	BI11.13
11	Estimation Of Alkaline Phosphatase	BI11.14
12	ABG Analyser	BI11.16
13	Estimation Of Electrolyte By ISE	BI11.16
14	Quality Control	BI11.16
15	Estimation Of Total Cholesterol And HDL	BI11.9
16	Estimation Of Triglyceride	BI11.10
17	Estimation Of Serum Creatinine And Creatinine Clearance	BI11.7
18	Case Discussion On Lipid Profile	BI11.17
19	Interpretation Of Lab Results Of Lipid Metabolism (Dyslipidemia ,MI)	BI11.17
20	Paper Chromatography Of Amino Acids,TLC	BI11.16
21	Estimation Of Blood Glucose	BI11.21
22	Estimation Of Serum Bilirubin	BI11.12
23	Case Reports On Liver Function Tests	BI11.17
24	ELISA	BI11.16
25	Immunodiffusion	BI11.16
26	Estimation Of Blood Urea	BI11.21
27	Analysis Of Normal Urine	BI11.3
28	Analysis Of Abnormal Constituents Of Urine	BI11.20

29	Estimation Of Serum Calcium	BI11.11
30	Case Reports On Renal Function Tests	BI11.17
31	Case Reports On Thyroid Function Tests	BI11.17
32	Estimation Of Phosphorous	BI11.11
33	CSF Analysis	BI11.15

Certification of Competencies – Skill Acquisition

Suggested format for checklist

General Guidelines

Sl No	Assessment criteria	Date of each evaluation*		
	Overall performance (A/B/C)			
	Name of Evaluator			
	Signature of evaluator			

Competency Description:

*Number columns as per requirement

Each criteria may be assessed by different tools (OSPE/Practical/viva) using appropriate scoring pattern.

Marking of each assessment criteria ✓ if student meets the expectation for each criteria

X if student does not meet the expectation for each criteria

Overall Performance in these assessments can be graded as below:

Meets expectations (ME)

A: Student is able to perform all the test and report the test results with appropriate interpretations independently and can be certified

Does not meet expectations (DME) -

Student needs further training to perform and report the test results with appropriate interpretations independently and a re-evaluation to certify the same.

B: > than 50% of criteria meets expectation, re-evaluation needed only for criteria which have not met the expectation.

C: < than 50% of criteria meets expectation, re-evaluation needed for the entire competency

Feedback to students: After each assessment, the respective faculty to give the feedback to students regards the areas for improvement/reassessment

List of practicals for skill certification: (6 practicals- each certified 3 times)

SL. NO	COMPETENCY NO	TOPIC	CERTIFICATION DATE	SIGNATURE OF FACULTY
1.	BI11.4	Perform urine analysis to estimate and determine normal and abnormal Constituents		
2.	BI11.20	Identify abnormal constituents in urine, interpret the findings and correlate these with pathological states.		
3.	BI11.21	Demonstrate estimation of glucose		
4.	BI11.21	Demonstrate estimation of urea		
5.	BI11.7/ BI11.21	Demonstrate estimation of serum Creatinine and creatinine clearance		

6.	BI11.8/BI11.21	Demonstrate estimation of serum total proteins, albumin & A:G ratio		
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Scheme of examination

Table 1: Summative assessment-Examination components, Subjects and Distribution of Marks

PHASE 1 MBBS SCHEME OF EXAMINATION

**Table 1: Summative assessment-
Examination components, Subjects and Distribution of Marks**

PHASE I UNIVERSITY EXAMINATION (in September every year)	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II)of 80 marks each 2×80=160
Multiple choice questions	1×20=20 each in Paper I and Paper II
Total theory marks	200
PRACTICAL	
Practical exam	80
Viva-voce	20
Total practical	100
Final Internal Assessment*	100
TOTAL MARKS	400

Type, number of questions and distribution of marks for 100 marks written theory paper

TYPES OF QUESTION	NUMBER OF QUESTIONS	MARKS FOR EACH QUESTION	Total marks
Multiple choice questions	20	1	20
Long essay questions	2	10	20
Short essays	9	5	45
Reasoning questions	5	3	15
Total marks			100

Long essay questions: Out of 2 questions in each paper, at least one question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.

Short essays: The questions should have biochemical basis and include questions on applied clinical aspects

Reasoning questions: These should test integration, clinical reasoning and analytical ability of the student.

MCQs should be preferably scenario based, single response with 4 options in answers. The competencies dealing mainly with skills and affective domains in each subject must be included.

INTERNAL ASSESSMENT

- Regular periodic examinations shall be conducted throughout the Phase 1 course. Day to day records and log book with required skill certifications should be given importance in internal assessment.
- Marks secured in class tests/unit tests, E-Tests, seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behavior are given weightage as part of formative assessment.
- There shall be three internal assessment examinations in each preclinical subject.
- An average of the marks scored in the three internal assessment examinations will be considered as the final internal assessment marks.
- Students must secure at least 50% marks of the total marks (combined in theory & practical) assigned for Internal assessment to be declared successful at the final university examination of that subject.
- The third internal examination is the preliminary examination to be conducted on the lines of the university examination.
- The students should be made aware of the results of internal assessment.
- Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.
- Internal assessment marks (theory/practicals) will contribute for the eligibility criteria and pass criteria for university exam.

- Internal assessment marks will reflect under separate head in the marks card of the university examination.

$$\text{Final Internal Assessment marks*} = \left(\frac{\text{Marks obtained in 3 IA Theory and practical} + \text{Sum of marks secured in all unit tests, E Tests}}{600 (200 \times 3)} \right) \times \frac{\text{Total marks}}{100} = \text{Converted to 100 marks}$$

- Final IA marks will be average of Internal assessments
- Pre University/pre final exam is mandatory
Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria

Internal assessment- components, Subjects and Distribution of Marks

THEORY			
Internal Assessment (Theory)	80	80	80
Multiple choice questions	1×20=20	1×20=20	1×20=20
Total theory marks	100	100	100
PRACTICAL			
Internal assessment (Practical)	60	60	60
Viva-voce	20	20	20
Formative assessment*	20	20	20
Total practical	100	100	100

Formative assessment* includes marks secured in seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behaviour.

Blueprint for Formative assessment

Content	Marks
Seminar presentation/ participation in quizzes/ problem solving exercises	4 Marks (20%)
Log book maintenance, timely completion and submission	4 Marks (20%)

Record book maintenance, timely completion and submission	4 Marks (20%)
Professionalism and behaviour	4 Marks (20%)
Early clinical exposure and Skill certification	4 Marks (20%)
Total Marks	20

Distribution of topics for Paper I and Paper II for university Examination

Topic wise weightage

Paper 1

Sl No	Topics	Weightage Up to (in marks)
1	Cell structure and function	5
2	Extra cellular matrix	3
3	Enzymes	13
4	Chemistry of Carbohydrate	5
5	Metabolism of Carbohydrate	13
6	Chemistry of Lipids	5
7	Metabolism of Lipids	13
8	Blood Glucose Homeostasis	8
9	Bioenergetics and Biological Oxidation	5
10	Vitamins	13
11	Minerals	13
12	Nutrition	10
13	Acid Base Balance and disorders	13
14	Water and electrolyte balance	6

Paper 2

Sl No	Topics	Weightage Upto (in marks)
1	Protein Chemistry	6
2	Plasma proteins	5
3	Immunology	5
4	Protein and amino acid Metabolism	13
5	Chemistry of Nucleotides and Nucleic acids	6
6	Metabolism of Nucleotides	10
7	Molecular Biology	13
8	Oncogenesis	6
9	Heme Metabolism	13
10	Organ function tests	13
11	Free radicals and Antioxidants	6
12	Xenobiotics and Detoxification	5
13	Biochemistry Laboratory tests/Automation and quality control	5

Note: Weightage of marks assigned to topics may add to more than 100. Structured Long essay question should be from the topics with weightage of MORE THAN 10 marks

Practical examination to include the component of Objective Structured Practical Examination (OSPE) / Objective Structured Clinical Examination (OSCE) Assessment of Early Clinical Exposure should be included in formative as well as in internal assessment (Theory/Practical) in first phase subject-wise.

There should be at least one assessment based on direct observation of skills, attitudes and communication at all levels.

There should be at least one short question from AETCOM in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module. At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

PRACTICALS Exam pattern for University exam:

Practical exercises - 80 marks

- | | |
|--|----------|
| 1. Exercise 1: OSCE/OSPE for Qualitative analysis of Normal
or Pathological Constituents of Urine | 20 marks |
| 2. Exercise 2: Quantitative estimation and interpretation | 20 marks |
| 3. Exercise 3: Spotters | 20 marks |
| 4. Case studies | 20 marks |

Exercise 1: OSCE/OSPE for Qualitative analysis of Normal

or Pathological Constituents of Urine **20 marks**

Selection, principle and performance of tests 10 marks

Interpretation and Discussion 10 marks

Note: Alphabetically arranged test procedures shall be given

Exercise 2: Quantitative estimation and interpretation **20 marks**

Principle: 5 Marks

Procedure, Calculation and Results: 5 Marks

Interpretation and Discussion: 10 Marks

Note: Procedures sheets shall be given

Exercise 3: Spotters (10spotters carrying 2marks each) **20 marks**

Exercise 4: Case studies **20 marks**

Total No of case reports is 2, carrying 10marks each.

Suggested case studies: Organ function tests/ Diabetes mellitus/Acid base disorders/

Myocardial infarction/Dyslipidemia/PEM

VIVA VOCE Examination: 20 marks

- The viva-voce examination shall carry 20 marks and all examiners will conduct the examination.
- Viva should focus on application and interpretation.
- Viva marks to be added to practicals and not theory.
- Portions of Paper I - 10 Marks; Portions of Paper II - 10 Marks

Pass Criteria

- For declaration of pass in any subject in the University examination, a candidate shall pass in Theory, Practical/Clinical and Internal assessment examinations components separately
- Internal Assessment: 50% combined in theory and practical (not less than 40% in each in subjects that have two papers) for eligibility for appearing for University Examinations
- University Examination: Mandatory 50% marks in theory and practical (practical = practical/clinical + viva) [theory=theory paper(s) only]
- A candidate not securing 50% marks in aggregate in Theory or Practical/Clinical examination + viva or internal assessment in a subject shall be declared to have failed in that subject and is required to appear for both Theory and Practical/Clinical again in the subsequent examination in that subject.

COMMUNITY MEDICINE

Phase 01

i) Goal

The broad goal of the teaching of undergraduate students in Community Medicine is to prepare them to function as first level community physicians in accordance with the institutional goals.

ii) Objectives

a) Knowledge

1. At the end of the course, the student shall be able to:-
2. List epidemiological methods and describe their applications to communicable and non-communicable diseases in the community or hospital situation;
3. Enunciate the principles and components of primary health care and the national health policies to achieve the goal of 'Health administration, Health education in relation to community'.
4. Describe the health care delivery system including rehabilitation of the disable in the country;
5. Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control;
6. Apply bio-statistical methods and techniques;
7. Outline the demographic pattern of the country and appreciate the roles of the individual family, community and socio-cultural milieu in health and disease;
8. Describe the health information systems;
9. Identify the environmental and occupational hazards and their control.
10. Describe the importance of water and sanitation in human health
11. Understand the principles of health economics, health administration and health education in relation to community.

b) Skills:

At the end of the course, the student should be able to:-

1. Use epidemiology as a scientific tool to make national decisions relevant to community and individual patient intervention.
2. Collect, analyze, interpret and present simple community and hospital based data;
3. Diagnose and manage common health problems and emergencies at the individual family and community levels keeping in mind the existing health care resources and in the context of the prevailing socio-cultural beliefs;
4. Diagnose and manage maternal and child health problems and advise a couple and the community on the family welfare planning methods available in the context of the national priorities;
5. Diagnose and manage common nutritional problems at the individual and community level;
6. Plan, implement and evaluate a health education program with skill to use simple audiovisual aids.
7. Interact with other members of the health care team and participate in the organization of health care team and participate in the organization of health care services and implementation of national health programmes.

c) Integration

Develop capabilities of synthesis between cause of illness in the environment or community and individual health and respond with leadership qualities to institute remedial measures for this.

I MBBS**First professional year teaching hours**

Lecture(hours)	20
Small Group teaching/Tutorials/ Integrated learning/Practicals (hours)	27
Self Directed learning(hours)	05
Total	52

Lectures

Concepts of Health

- CM1.1: Define and describe the concept of Public Health
- CM1.2: Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health
- CM 1.3: Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial aetiology of disease
- CM 1.4: Describe and discuss the natural history of disease
- CM 1.5: Describe the application of interventions at various levels of prevention

Sociology

- CM 2.1: Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community
- CM 2.2: Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status

Environment and Health

- CM 3.1: Describe the health hazards of air, water, noise, radiation and pollution

Nutrition

- CM 5.1: Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions
- CM 5.2: Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method

Health education

- CM 4.1: Describe various methods of health education with their advantages and limitations

RCH

- CM 10.1: Describe the current status of Reproductive, maternal, newborn and Child Health
- CM 10.5: Describe Universal Immunization Program

Hospital Waste Management

- CM 14.1: Define and classify hospital waste
- CM 14.2: Describe various methods of treatment of hospital waste
- CM 14.3: Describe laws related to hospital waste management

Health care of Community

- CM 17.1: Define and describe the concept of health care to community
- CM 17.5 Describe health care delivery in India
- CM: 17.2 Describe community diagnosis
- CM: 17.3 describe primary health care, its components and principles

Family Adoption

Small Group Teaching

Concepts of Health

- CM1.1: Define and describe the concept of Public Health
- CM1.2: Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health
- CM 1.3: Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial aetiology of disease
- CM 1.4: Describe and discuss the natural history of disease
- CM 1.5: Describe the application of interventions at various levels of prevention

Sociology

- CM 2.1: Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community
 - CM 2.2: Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status

Environment and Health

- CM 3.1: Describe the health hazards of air, water, noise, radiation and pollution

Nutrition

- CM 5.1: Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions
- CM 5.2: Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method

Health education

- CM 4.1: Describe various methods of health education with their advantages and limitations
- CM 4.2: Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings

RCH

- CM 10.5: Describe Universal Immunization Program

Hospital Waste Management

- CM 14.1: Define and classify hospital waste
- CM 14.2: Describe various methods of treatment of hospital waste

Health care of Community

- CM 17.1: Define and describe the concept of health care to community

- CM: 17.2: Describe community diagnosis
- CM: 17.3: Describe primary health care, its components and principles

Family Adoption

Self directed Learning

Demography and Vital Statistics

- CM:9.3 Enumerate and describe the causes of declining sex ratio and its social and health implications
- CM:9.4 Enumerate and describe the causes and consequences of population explosion and population dynamics of India

Health Care of Community

- 10.2 Enumerate and describe the methods of screening high risk groups and common health problems

II MBBS

Second professional year teaching hours

Lecture(hours)	20
Small Group teaching/Tutorials/ learning/Practicals (hours)	30
Self Directed learning(hours)	10
Total	60

Lectures

Concepts of Health

- CM1.6: Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)
- CM1.7: Enumerate and describe health indicators
- CM1.8: Describe the Demographic profile of India and discuss its impact on health
- CM1.9: Demonstrate the role of effective Communication skills in health in a simulated environment
- CM1.10: Demonstrate the important aspects of the doctor patient relationship in a simulated environment

Sociology

- CM2.4: Describe social psychology, community behaviour and community relationship and their impact on health and disease
- CM2.5: Describe poverty and social security measures and its relationship to health and disease

Environment and Health

- CM 3.2: Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting
- CM3.3: Describe the aetiology and basis of water borne diseases/ jaundice/hepatitis/ diarrheal diseases
- CM3.4: Describe the concept of solid waste, human excreta and sewage disposal- Part I

Epidemiology

- CM 7.1: Define Epidemiology and describe and enumerate the principles, concepts and uses
- CM 7.2: Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non communicable diseases
- CM7.3: Enumerate, describe and discuss the sources of epidemiological data
- CM7.5: Enumerate, define, describe and discuss epidemiological study Designs
- CM 7.8 : Describe the principles of association, causation and biases in epidemiological studies

Communicable and Non-communicable disease

- CM8.1: Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases
- CM8.3: Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case
- CM8.4: Describe the principles and enumerate the measures to control a disease epidemic
- CM8.5: Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease
- CM8.7: Describe the principles of management of information systems

Demography and vital statistics

- CM9.1: Define and describe the principles of Demography, Demographic cycle, Vital statistics
- CM9.5: Describe the methods of population control
- CM9.6: Describe the National Population Policy
- CM9.7: Enumerate the sources of vital statistics including census, SRS,NFHS, NSSO etc

Mental Health

- CM15.1: Define and describe the concept of mental Health
- CM15.2: Describe warning signals of mental health disorder
- CM15.3: Describe National Mental Health program

Small group Teaching

Concepts of Health

- CM1.6: Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)
- CM1.7: Enumerate and describe health indicators
- CM1.8: Describe the Demographic profile of India and discuss its impact on health
- CM1.9: Demonstrate the role of effective Communication skills in health in a simulated environment
- CM1.10: Demonstrate the important aspects of the doctor patient relationship in a simulated environment

Sociology

- CM2.3: Describe and demonstrate in a simulated environment the assessment of barriers to good health and health seeking behavior

Environment and Health

- CM3.6: Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program
- CM3.7: Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures

Nutrition

- CM5.4: Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment

Basic Statistics

- CM6.1: Formulate a research question for a study
- CM6.2: Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data
- CM6.3: Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs
- CM6.4: Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion

Epidemiology

- CM7.4: Define, calculate and interpret morbidity and mortality indicators based on given set of data
- CM7.6: Enumerate and evaluate the need of screening tests
- CM7.7: Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures
- CM7.9: Describe and demonstrate the application of computers in epidemiology

Communicable and Non communicable

- CM8.3: Enumerate and describe tuberculosis disease specific National Health Programs including their prevention and treatment of a tuberculosis case
- CM8.6: Educate and train health workers in disease surveillance, treatment and health education

Online MCQ test and discussion

Self directed Learning

- CM1.6: Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)
- CM1.7: Enumerate and describe health indicators
- CM1.8: Describe the Demographic profile of India and discuss its impact on health
- CM1.9: Demonstrate the role of effective Communication skills in health in a simulated environment
- CM 7.2: Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non communicable diseases
- CM7.3: Enumerate, describe and discuss the sources of epidemiological Data
- CM7.5: Enumerate, define, describe and discuss epidemiological study Designs
- CM8.1: Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases
- Online MCQ test and discussion
- Forum activity and discussion

Pathology

Goal: The broad goal of the teaching of undergraduate student in Pathology is to provide the students with a comprehensive knowledge of the mechanisms and causes of disease, in order to enable the student to achieve complete understanding of the natural history and clinical manifestations of disease.

Objectives:

A. Knowledge:

At the end of the course, the student should be able to:

1. Describe the structure of a sick cell, mechanisms of cell injury including cell death and repair, and be able to correlate structural and functional alterations.
2. Explain the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it.
3. Describe the mechanisms and patterns of tissue response to injury and appreciate the pathophysiology of disease processes and their clinical manifestations.
4. Correlate normal and altered morphology (gross and microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

B. Skills:

At the end of the course, the student should be able to:

1. Describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
2. Perform the simple bed-side tests on blood, urine and other biological fluid samples.
3. Draw a rational scheme of investigations aimed at diagnosing and

managing the cases of common disorders.

4. Understand biochemical/physiological disturbances that occur as a result of disease.

C. Attitude, Ethics and Communication skills:

At the end of the course the student should be able to

1. Demonstrate the ability to take consent for common laboratory procedures.
2. Demonstrate the ability to work with the laboratory team.

D. Integration:

At the end of the course the student will be able to:

Integrate horizontally and vertically in the different organ systems

Horizontal with Pharmacology & Microbiology

Vertical with Phase I subjects – Anatomy, Physiology, Biochemistry with Phase III subjects - General Surgery, Internal Medicine, Paediatrics, Orthopaedics

E. Alignment:

At the end of the course student should be able to:

Understand the concepts aligned at horizontal level and vertical level.

1. Phase II subjects-Pharmacology & Microbiology
2. Theory and Practical classes

COURSE

I. GENERAL PATHOLOGY

Introduction to Pathology
Cell Injury and Adaptation
Amyloidosis
Inflammation
Healing and repair
Haemodynamic disorders
Neoplastic disorders
Basic diagnostic cytology
Immunopathology and AIDS
Infections and Infestations
Genetic and paediatric diseases
Environmental and nutritional diseases

II. HAEMATOLOGY & CLINICAL PATHOLOGY

Introduction to haematology
Microcytic anemia
Macrocytic anemia
Haemolytic anemia
Aplastic anemia
Leukocyte disorders
Lymph node and spleen
Plasma cell disorders
Hemorrhagic disorders
Blood banking & transfusion
Clinical Pathology

III. SYSTEMIC PATHOLOGY

Gastrointestinal tract
Hepatobiliary system
Respiratory system
Cardiovascular system
Urinary Tract
Male Genital Tract
Female Genital Tract
Breast
Endocrine System
Bone and Soft Tissue
Skin

COURSE CONTENT WITH COMPETENCIES

THEORY

Sl no	TOPIC	Competency	Hours Alloted	
			Didactic Lecture & SDL	SGD & SDL
	General Pathology			
1	Introduction to Pathology	PA 1.1 - 1.3	1	4
2	Cell Injury and Adaptation	PA 2.1 -2.7	5	2
3	Amyloidosis	PA 3.1	1	-
4	Inflammation	PA 4.1 – 4.3	4	-
5	Healing and repair	PA 5.1	1	-
6	Haemodynamic disorders	PA 6.1 -6.6	4	-
7	Neoplastic disorders	PA 7.1 -7.5	5	6
8	Basic diagnostic cytology	PA 8.1 -8.2	1	2
9	Immunopathology and AIDS	PA 9.1 – 9.7	1	4

10	Infections and Infestations	PA 10.1 -10.4	-	8
11	Genetic and paediatric diseases	PA 11.1 -11.3	2 (SDL)	-
12	Environmental and nutritional diseases	PA 12.1-12.3	2 (SDL)	-
	Total		27	26
	Haematology & Clinical Pathology			
13	Introduction to haematology	PA 13.1-13.4	1 (SDL)	12
14	Microcytic anemia	PA 14.1-14.2	1 (SDL)	-
15	Macrocytic anemia	PA 15.1, 15.2 15.4	1 (SDL)	-
16	Haemolytic anemia	PA 16.1-16.5, 16.7	3	-
17	Aplastic anemia	PA 17.1-17.2	1 (SDL)	2
18	Leukocyte disorders	PA 18.1-18.2	2	4 (SDL)
19	Lymph node and spleen	PA19.1,19.2, 19.4,19.6	2	-
20	Plasma cell disorders	PA 20.1	1 (SDL)	-
21	Hemorrhagic disorders	PA 21.1-21.5	2	2
22	Blood banking & transfusion	PA 22.1 -22.7	1 (SDL)	2
23	Clinical Pathology	PA 23.2	-	-
	Total		15	22
	Systemic pathology			
24	Gastrointestinal tract	PA 24.1-24.7	4	6
25	Hepatobiliary system	PA 25.1-25.5	3	4
26	Respiratory system	PA 26.1-26.7	5	2
27	Cardiovascular system	PA 27.1-27.7, 27.9-27.10	5	2
28	Urinary Tract	PA 28.1- 28.16	10	8
29	Male Genital Tract	PA 29.1 – 29.5	4	4
30	Female Genital Tract	PA 30.1 – 30.9	6	6
31	Breast	PA31.1, 31.2, 31.4	2	-
32	Endocrine system	PA 32.1 – 32.9	3	10
33	Bone and soft tissue	PA 33.1- 33.5	3	6
34	Skin	PA 34.1-34.3	1	2
35	Central Nervous System	PA 35.1- 35.3	2	1
36	Eye	PA 36.1	-	1
	Total		48	52

PRACTICALS

Sl no	TOPIC	Competency	DOAP (2hrs) 40 hours
	General Pathology		
1.	Cell Injury and Adaptation	PA 2.8	2
2.	Amyloidosis	PA 3.2	2
3.	Inflammation	PA 4.4	2
4.	Hemodynamic disorders	PA 6.7	2
5.	Basic diagnostic cytology	PA 8.3	2
	Total		10
	Haematology & Clinical Pathology		
6.	Introduction to haematology	PA13.5	2
7.	Microcytic anemia	PA 14.3	2
8.	Macrocytic anemia	PA 15.3	2
9.	Haemolytic anemia	PA 16.6	2
10.	Lymph node and spleen	PA 19.3, 19.5, 19.7	6
11.	Plasma cell disorders	PA 20.1	2
12.	Clinical Pathology	PA 23.1-23.3	4
	Total		20
	Systemic pathology		
13.	Hepatobiliary system	PA25.6	2
14.	Cardiovascular system	PA 27.8	2
15.	Breast	PA 31.3	2
16.	Skin	PA 34.4	2
17.	Central Nervous System	PA 35.3	2
	Total		10

SKILL CERTIFICATION:

Sl. NO	NUMBER	COMPETENCY
1	PA-16.6	Prepare peripheral blood smear. Write a report
2	PA-25.6	Interpret the liver function test
3	PA-35.3	Identify the etiology of meningitis based on given CSF parameters

TEACHING HOURS AND METHODS:

Method	Hours
Didactic lectures	80
Small group Discussions	98
Practicals (DOAP)	40
Self-Directed Learning	12
Total	230

- Attendance requirements are 75% in theory and 80% in practical for eligibility to appear for the examinations in Pathology.
- 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in Phase 2. Biometric attendance of the students will be captured by the IT.

INTERNAL ASSESSMENT

Students must secure at least **50% of the total marks** assigned for internal assessment (**combined in theory and practicals, and not less than 40% in theory & practicals separately**) for eligibility for appearing for University Examinations

Internal assessment marks will reflect as separate head of passing at the summative examination

Internal Assessment (IA) components and distribution of marks

THEORY			
	I IA	II IA	III IA (2 papers)
Written Paper	80	80	80x2
MCQ	20	20	20x2
Total	100	100	100x2 = 200
PRACTICAL& VIVA			
	I IA	II IA	III IA
Practicals	60	60	60
Viva	20	20	20
Formative Assessment*	20	20	20
Total	100	100	100

*Formative assessment includes marks secured in e-tests, assignments, seminar presentations, participation in problem-solving exercises, quizzes, record book completion, log-book maintenance and professionalism.

Blueprint for Formative assessment

Content	Marks
Marks obtained in seminar presentations, participation in problem-solving exercises, quizzes	5 (25%)
Record book completion	5 (25%)
Log-book maintenance	5 (25%)
Professionalism	5 (25%)
Total Marks	20

Type, number of questions and distribution of marks for 1-- marks written theory paper

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS FOR EACH QUESTION	TOTAL MARKS
Long Essay	2	10	20
Short Essays	9	5	45
Short Answers	5	3	15
MCQ	20	1	20
			100

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/ Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should include scenario based, single response with 4 options in answers.
- The competencies dealing mainly with skills and affective domains in each subject must be included.
- **Practical examination** to include the component of Objective Structured Practical Examination (OSPE).
- There should be at least **one assessment based on direct observation of skills, attitudes and communication at all levels.**
- There should be at least one short question from **AETCOM** in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module. At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module);
- Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

UNIVERSITY EXAMINATION

- Mandatory 50% marks separately in theory and practical (practical = practical + viva)
- In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.
- Nature of questions will include structured essays (Long Answer Questions- LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). MCQs shall be accorded a weightage of not more than 20% of the total theory marks.
- 2 LAQs of 10 marks each, 9 Short Notes of 5 marks each, 5 Reasoning Questions/SAQs of 3 marks each and 20 Multiple Choice Questions (MCQs) of 1 mark each will be included for 100 marks question paper.

PHASE II MBBS SCHEME OF UNIVERSITY EXAMINATION

Summative assessment examination components and distribution of marks

PHASE II UNIVERSITY EXAMINATION	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II) of 80 marks each $2 \times 80 = 160$
Multiple Choice Questions (MCQ)	$1 \times 20 = 20$ each in Paper I and Paper II of 20 marks each $2 \times 20 = 40$
Total	200 marks
PRACTICAL	
OSPE	80 marks
Viva Voce	20 marks
Total practical	100 marks
Final Internal Assessment*	100 marks
TOTAL MARKS	400 marks

*Final IA marks will be calculated as follows:

Final internal Assessment marks

= Average of all the three Internal assessments (Theory & Practical) / total marks + Sum of total marks obtained in all unit tests & e-tests / Total marks.

It will be converted to 100 marks.

- Pre University/pre final exam is mandatory
- Pre University/pre final exam will be conducted after III Internal assessment and will be in line with the University examination
- Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria.

Summative Theory Examination:

Marks distribution for theory question paper (Includes MCQs)

SI NO	TOPICS	MARKS DISTRIBUTION
PAPER I		
GENERAL PATHOLOGY		Marks Allocated
1.	Introduction to Pathology	1-3
2.	Cell Injury and Adaptation	3-13
3.	Amyloidosis	1-5
4.	Inflammation	3-13
5.	Healing and repair	1-5
6.	Hemodynamic disorders	3-13
7.	Neoplastic disorders	3-13
8.	Basic diagnostic cytology	3-5
9.	Immunopathology and AIDS	3-8
10.	Infections and Infestations	1-8
11	Environmental and nutritional disease	1-6
HEMATOLOGY AND CLINICAL PATHOLOGY		
12.	Introduction to haematology	3-10
13.	Microcytic anemia	1-10
14.	Macrocytic anemia	1-10
15.	Hemolytic anemia	1-10
16.	Leukocyte disorders	1-10

17.	Lymph node and spleen	1-6
18.	Plasma cell disorders	1-6
19.	Hemorrhagic disorders	1-10
20.	Blood banking and transfusion	1-6
21.	Clinical Pathology	3-6
PAPER II		
SYSTEMIC PATHOLOGY		
1.	Gastrointestinal tract	3-11
2.	Hepatobiliary system	3-11
3.	Respiratory system	3-11
4.	Cardiovascular system	3-15
5.	Urinary Tract	3-11
6.	Male Genital Tract	1-6
7.	Female Genital Tract	1-10
8.	Breast	1-10
9.	Endocrine system	1-10
10.	Bone and soft tissue	1-10
11.	Skin	1-6
12.	Central Nervous system	1-6

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short Notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should be single response with 4 options in answers. It should include scenario based MCQs. Avoid one liner and negative terms in the stem of the question. Avoid 'all of above' and 'none of above' in the options.

Summative Practical Examination:

The distribution of content and marks for the practical examination

Practical I: (20 marks)	10 SPOTTERS (2 marks each) – Specimens, slides, instruments & charts
Practical II: (20 marks)	5 marks - Skill assessment (Blood Grouping / Peripheral smear Preparation / Peripheral smear Staining) 15 Marks - Peripheral smear interpretation
Practical III: (20- marks)	10 marks - Urine analysis 10 marks- Histopathology slide interpretation
Practical IV: (20 - marks)	OSPE (cases) – 5marks x 4

Viva-Voce Examination: 20 Marks

Marks allotted for each examiner – 5

Subject allotted for each examiner:

1. Clinical Pathology and Haematology
2. General Pathology
3. Systemic Pathology – I (CVS, RS, GIT, Hepatobiliary & Lymphoreticular systems)
4. Systemic Pathology - II (Urinary system, Male and Female genital tracts, Endocrines, Bone and Soft tissue, Central Nervous System, Skin)

CRITERIA FOR PASSING IN PATHOLOGY:

Theory: The student must secure at least 40% marks in each of the two papers with minimum 50% of marks in aggregate (both papers together) to pass.

Practicals: The student must secure at least 50% marks in aggregate, i.e., marks obtained in university practical examination and viva voce added together

Internal Assessment:

- An average of the marks scored in the three internal assessment examinations will be considered as the final internal assessment marks.
- Students must secure not less than 40 % marks in theory and practical separately and not less than 50% marks of the total marks (combined in theory and practical).

SUGGESTED TEXT BOOKS

TEXT BOOKS

1. Nayak R. Exam Preparatory Manual for Undergraduates in Pathology.4th ed. Jaypee, New Delhi, 2020.
2. Kumar V, Abbas AK, Aster JC.Robbins & Cotran Pathologic Basis of Disease.10th ed. Saunders, Philadelphia, 2021.

REFERENCE BOOKS

Theory:

1. Walter.J. B & Talbot. I.C. General Pathology.7thed, Elsevier;1996
2. Rubin.R, Strayer. D. S. Rubin's Pathology. 6thed, Wolters Kluwer, Lippincott Williams and Wilkins; 2012.
3. O'Dowd G, Bell S & Wright S. Wheater's Pathology. 6thed, Elsevier; 2020.
4. Saxena R, Pati. H. P, Mahapatra. M, Firkin. F, Chesterman. C & Ponington. D et.al.DeGruchy`s Clinical Haematology in Medical Practice. 6thed, Wiley India; 2012.
5. Nayak.R & Rai.S.Essentials in Haematology and Clinical Pathology. Jaypee Brothers;2017.
6. Carman. H. R. Handbook of Medical Laboratory Technology. Christian Medical Association of India. 2013.
7. Singh T. Atlas and Text of Hematology. 4thed Avichal Publishing Company 2018.
8. Reid R, Roberts F & Macduffe. Pathology Illustrated. 7thed Churchill Livingstone, Elsevier; 2011.
9. Curran R C, Jones E L. Gross Pathology- A Color Atlas. 4th ed. Harvey Miller Publishers.
10. Underwood`s pathology: a clinical approach 7thed.
11. Damjanov.I, Linder.J.Anderson`s Pathology.10ed, Elsevier; 2019.

Practicals:

1. McKenzie.S.B, Williams.J.L. Clinical laboratory Haematology.2ed, Pearson; 2009.
2. Bain.J.B,Bates.I, Laffan.M.A. Dacie and Lewis Pratical Haematology, 12ed, Elsevier; 2017.
3. McPherson.R.A.Henry`s Clinical Diagnosis and Management by Laboratory Methods. 23ed, Elsevier; 2016.

Pharmacology

Goal:

The broad goal of the teaching Pharmacology is to inculcate skills of rational prescribing and scientific basis of therapeutics in the Indian Medical Graduate (IMG) during the second year of MBBS. The emphasis is on clinical relevance of pharmacological knowledge.

Objectives:

A. Knowledge:

At the end of the course the student should be able to:

1. Describe the Pharmacokinetics and Pharmacodynamics of essential and commonly used drugs.
2. Acquire the knowledge of indications, contraindications, drug interactions and adverse effects of drugs in therapeutics
3. Enlist the principles of prescribing in normal population and in special medical situations such as pregnancy, lactation, children, elderly and patients with organ dysfunction.
4. Discuss the importance of Evidence Based Medicine and Therapeutic drug monitoring.
5. Integrate the concept of rational drug therapy and P drugs in clinical pharmacology.
6. Explain the concept of Pharmacoeconomics and Pharmacogenomics.
7. Describe the clinical presentation, diagnosis and management of common poisonings including heavy metals, insecticides, common sting and bites
8. Enlist the drugs of abuse and state their management
9. Describe overview of drug development, phases of clinical trials and Good Clinical Practice.
10. Describe the principles of Pharmacovigilance & Adverse Drug Reactions reporting systems.
11. Explain the concepts and clinical relevance of Essential medicines, Fixed dose combinations, Over the counter drugs, herbal medicines, dietary supplements and nutraceuticals
12. Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents
13. Describe Vaccines and their uses.

B. Skills: At the end of the course the student should be able to:

1. Write a rational prescription for common conditions and communicate the same to the patient.
2. Calculate the dosage of drugs using appropriate formulae for special medical situations such as pregnancy, lactation, children, elderly and patients with organ dysfunction.
3. Recognise and report an adverse drug reaction of commonly used medications
4. Demonstrate the effects of drugs on blood pressure through computer aided learning and interpret the graph
5. Perform a critical evaluation of the drug promotional literature.
6. Administer drugs through various routes in a simulated environment.

C. Attitude, Ethics and communication skills:

At the end of the course the student should be able to:

1. Communicate with the patient with empathy and ethics on all aspects of drug use.
2. Communicate with the patient regarding drug therapy, devices and storage of medicines.
3. Explain to the patients the right way to use the various drug formulations.
4. Communicate the importance of adherence to medications and motivate the patients with chronic diseases.
5. Demonstrate ability to educate public and patients about various aspects of drug use including drug dependence and OTC drugs.

D. Integration: At the end of the course the student will be able to:

1. Integrate horizontally and vertically in the different organ systems recognizing the interaction between the drug, host and disease in order to understand the context of therapy.

E. Alignment: At the end of the course student should be able to:

Understand the concepts aligned at horizontal level and vertical level..

LIST OF SYSTEMS INCLUDED IN PHARMACOLOGY:

1. General Pharmacology & Clinical Pharmacology and rational drug use
2. Autonomic Nervous System including Skeletal muscle relaxant.
3. Autacoids
4. Drugs in anaesthetic practice
5. Central Nervous System
6. Diuretics
7. Drugs affecting blood and blood formation
8. Cardiovascular System
9. Respiratory System
10. Gastrointestinal System
- 11 Endocrine System
12. Chemotherapy
13. Anticancer drugs and immunomodulators
14. Miscellaneous
15. Pandemic module

COURSE CONTENT WITH COMPETENCIES

THEORY

Topic	Competency Number	Hours Allotted
1. Define and describe the principles of pharmacology and pharmacotherapeutics	PH 1.1	1 hr
2. Describe various routes of drug administration, eg: oral, SC, IV, IM, SL	PH 1.11	2 hrs
3. Describe absorption, distribution, metabolism & excretion of drugs	PH 1.4	3 hrs
4. Describe general principles of mechanism of drug action	PH 1.5	3 hrs
5. Describe principles of Pharmacovigilance & ADR reporting systems	PH 1.6	1 hr
6. Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti- adrenergic drugs	PH 1.13	4hrs
7. Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	PH 1.14	3 hrs
8. Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	PH 1.15	1 hr
9. Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti- histaminic, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	PH 1.16	3 hrs

10. Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of local anesthetics	PH 1.17	1 hrs
11. Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of general anesthetics, and pre-anesthetic medications	PH 1.18	2 hrs
12. Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti- psychotic, anti-depressant drugs, anti- manic, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti- epileptics drugs)	PH 1.19	8 hrs
13 Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretic s- vasopressin and analogues	PH 1.24	2 hrs
14. Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	PH 1.25	4 hrs
15. Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin-angiotensin and aldosterone system	PH 1.26	2 hrs
16. Describe the mechanism s of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	PH 1.27	3 hrs
17. Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	PH 1.28	4 hrs
18. Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	PH 1.29	1 hr
19. Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	PH 1.31	1hr
20. Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	PH- 1.32	2 hrs
21. Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: <ol style="list-style-type: none"> 1. Acid- peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel disorders, Biliary and Pancreatic disorders. 	PH- 1.34	2 hrs
22. Describe the mechanism of action, types, doses, side effects indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	PH 1.36	3 hrs
23. Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones.	PH 1.37	4hrs
24. Describe mechanism of action, types, doses, side effects,	PH 1.40	1 hr

indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction		
25. Describe general principles of chemotherapy & general antibiotics	PH 1.42	7 hrs
26. Describe the first line anti tubercular drugs, their mechanisms of action, side effects and doses	PH 1.44	1 hr
27. Describe the drugs used in MDR and XDR Tuberculosis	PH 1.45	1 hr
28. Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	PH 1.46	1 hr
29. Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	PH 1.47	2 hrs
30. Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV & Antifungal drugs	PH 1.48	3 hrs
31. Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drug	PH 1.49	2 hrs
32. Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	PH 1.50	1hr
33. Describe basic aspects of Geriatric and Pediatric pharmacology	PH 1.56	1 hr
34. Pandemic module		2 hrs

PRACTICAL

Sl. No.	Procedures to be performed by the students:		
a.	CLINICAL PHARMACY	Competency Number	Hours
1	Demonstrate understanding of the use of various dosage forms (oral/ local/ parenteral; solid/liquid)	PH 2.1	8 hrs
2	Prepare oral rehydration solution from ORS packet and explain its use	PH 2.2	2 hrs
3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment	PH 2.3	4 hrs
4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations (integration with General medicine, Paediatrics)	PH 2.4	4 hrs
b.	CLINICAL PHARMACOLOGY		
	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient (integration with General medicine)	PH 3.1	6
	Perform and interpret a critical appraisal (audit) of a given prescription	PH 3.2	6
	Perform a critical evaluation of the drug promotional literature	PH 3.3	6
	To recognize and report an adverse drug reaction	PH 3.4	4
	To prepare and explain a list of P- drugs for a given case/ condition – 3 no.s (integration with General medicine)	PH 3.5	6

	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	PH 3.6	2
	Prepare a list of essential medicine for a health care facility	PH 3.7	4 hrs
	Communicate effectively with a patient on proper use of prescribe medication	PH 3.8	4 hrs
c.	EXPERIMENTAL PHARMACOLOGY		
	Administer drugs through various routes in a simulated environment using mannequins	PH 4.1	8 hrs
	Demonstrate the effects of drugs on blood pressure (vasopressor and vasodepressors with appropriate blockers) using computer aided learning(CAL)	PH 4.2	4 hrs
d.	COMMUNICATION SKILLS		
	Communicate with the patient with empathy and ethics on all aspects of drug use	PH 5.1	2 hrs
	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	PH 5.2	4 hrs
	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider	PH 5.3	4 hrs
	Explain to the patient the relationship between cost of treatment and patient compliance	PH 5.4	2 hrs
	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	PH 5.5	4 hrs
	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	PH 5.6	4 hrs
	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	PH 5.7	2 hrs

SKILL CERTIFICATION:

List of certifiable skills:

Competency number	Skill
PH 3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient (integration with General medicine)
PH 3.2	Perform and interpret a critical appraisal (audit) of a given prescription.
PH 3.3	Perform a critical evaluation of the drug promotional Literature - Brainstorming followed by demonstration – (integration with General medicine)
PH 3.5	To prepare and explain a list of P- drugs for a given case/ condition – (integration with General medicine)

SMALL GROUP DISCUSSION

Competency no.	TOPICS
PH 1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring
PH 1.3	Enumerate and identify drug formulations and drug delivery systems
PH 1.7	Define, identify and describe the management of adverse drug reactions (ADR)
PH 1.8	Identify and describe the management of drug interactions
PH 1.9	Describe nomenclature of drugs i.e. generic, branded drugs
PH 1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately.
PH 1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction
PH 1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti- adrenergic drugs.
PH 1.16	Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti- histaminic, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine.
PH 1.19	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti- psychotic, anti- depressant drugs, anti- manic, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti- epileptics drugs).
PH 1.20	Describe the effects of acute and chronic ethanol intake.
PH 1.21	Describe the symptoms and management of methanol and ethanol poisonings
PH 1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences).
PH 1.23	Describe the process and mechanism of drug deaddiction
PH- 1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussive s, expectorants/ mucolytics)
PH- 1.34	-Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: Acid- peptic disease and GERD Antiemetics and prokinetics Antidiarrhoeals Laxatives Inflammatory Bowel Disease Irritable Bowel disorders, Biliary and Pancreatic disorders.

PH 1.35	- Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: Drugs used in anemias Colony Stimulating factors
PH 1.36	Describe the mechanism of action, types, doses, side effects indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)
PH 1.37	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones
PH 1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception
PH 1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants
PH 1.42	Describe general principles of chemotherapy
PH 1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program
PH 1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis
PH 1.48 -	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV &Antifungal drugs
PH- 1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents
PH 1.52	Describe management of common poisoning, insecticides, common sting and bites
PH 1.53	Describe heavy metal poisoning and chelating agents
PH 1.54	Describe vaccines and their uses
PH 1.55	Describe and discuss the following National Health Programme including Immunization, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia& nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency
PH 1.58	Describe drugs used in Ocular disorders
PH 1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines.

PH 1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics
PH 1.62	Describe and discuss antiseptics and disinfectants
PH 1.63	Describe Drug Regulations, acts and other legal aspects
PH 1.64	Describe overview of drug development, Phases of clinical trials and Good Clinical Practice
PH 5.1	Communicate with the patient with empathy and ethics on all aspects of drug use
PH 5.2	Communicate with the patient regarding optimal use of <ol style="list-style-type: none"> 1. Drug therapy 2. Storage Devices
PH 5.3	Motivate patients with chronic diseases to adhere to the prescribed management by health care provider
PH 5.4	Explain to the patient the relationship between cost of treatment and patient compliance
PH 5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management (integrate with Psychiatry)
PH 5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs (integrate with Psychiatry)
PH 5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs (integrate with Forensic Medicine)

TEACHING HOURS AND METHODS:

Method	Hours
1. Interactive lectures	80
2. Small group teaching/tutorials/integrated learning/practical	138
3. Self directed learning	12
4. Pandemic module	6
Total	236

ATTENDANCE:

- Attendance requirements are 75% in theory and 80% in practical for eligibility to appear for the examinations in Pharmacology.
- 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in Phase 2. Biometric attendance of the students will be captured by the IT.

INTERNAL ASSESSMENT:

Students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40% marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject.

- Internal assessment marks will reflect as separate head of passing at the summative examination.

Table 1: Internal Assessment (IA) components and distribution of marks

THEORY			
	I IA	II IA	III IA
Theory	80	80	80
Multiple choice questions	1×20=20	1×20=20	1×20=20
Total theory marks	100	100	100
PRACTICAL			
Practical	60	60	60
Viva-voce	20	20	20
Formative assessment*	20	20	20
Total practical marks	100	100	100

*Formative assessment includes marks secured in seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behaviour

Blueprint for Formative assessment

Content	Marks
Seminar presentation/ problem solving exercises	5 marks (25%)
Log book maintenance, timely completion and submission	5 marks (25%)
Record book maintenance, timely completion and submission	5 marks (25%)
Professionalism and skill certification	5 marks (25%)
Total Marks	20

Table 2: Type, number of questions and distribution of marks for 100 marks written theory paper

Type of question	Number of questions	Marks for each question	Total marks
Long Essay (LE)	2	10	20
Short Essay (SE)	9	5	45
Short Answer (SA)	5	3	15
MCQs	20	1	20
			100

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/ Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should include scenario based, single response with 4 options in answers.
- The competencies dealing mainly with skills and affective domains in each subject must be included.
- **Practical examination** to include the component of Objective Structured Practical Examination (OSPE).
- There should be at least **one assessment based on direct observation of skills, attitudes and communication at all levels.**

- There should be at least one short question from **AETCOM** in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module. At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module);
- Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

UNIVERSITY EXAMINATION:

- Mandatory 50% marks separately in theory and practical (practical = practical + viva)
- The student must secure at least 40% marks in each of the two papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.
- Nature of questions will include structured essays (Long Answer Questions- LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). MCQs shall be accorded a weightage of not more than 20% of the total theory marks.
- 2 LAQs of 10 marks each, 9 Short Notes of 5 marks each, 5 Reasoning Questions/SAQs of 3 marks each and 20 Multiple Choice Questions (MCQs) of 1 mark each will be included for 100 marks question paper.

PHASE II MBBS SCHEME OF UNIVERSITY EXAMINATION

Table 1: Summative assessment examination components and distribution of marks

PHASE II UNIVERSITY EXAMINATION	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II) of 80 marks each $2 \times 80 = 160$
Multiple Choice Questions (MCQ)	$1 \times 20 = 20$ each in Paper I and Paper II of 20 marks each $2 \times 20 = 40$
Total	200 marks
PRACTICAL	

OSPE	80 marks
Viva Voce	20 marks
Total practical	100 marks
Final Internal Assessment*	100 marks
TOTAL MARKS	400 marks

***Final IA marks will be calculated as follows:**

$$\text{Final Internal assessment marks} = \left\{ \frac{\text{Marks obtained in 3 IA Theory \& practical + Sum of marks secured in marks all unit tests/ E tests}}{600 (200 \times 3)} \right\} \times \text{Total marks} = \text{Converted to 100 marks}$$

- Pre University/pre final exam is mandatory
- Pre University/pre final exam will be conducted after III Internal assessment and will be in line with the University examination
- Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria.

Summative Theory Examination – 200 marks

Table 2: Marks distribution for theory question paper (Includes MCQs)

Paper 1 (Max 100 marks)	
Topics	Marks Allocated
1.General Pharmacology	20
2.Autonomic Nervous system including Parkinsonism & Skeletal muscle relaxants	20
3.Diuretics & antidiuretics	10
4.Cardiovascular system & Dyslipidemia	15
5. Drugs acting on blood & Pharmacotherapy of shock	10
6. Central Nervous system including Peripheral Nervous system	25
Total	100

Paper 2 (Max 100 marks)	
Topics	Marks Allocated
1.Endocrines including Hormonal contraceptives+ Drugs acting on uterus	25
2.Autacoids	10
3.Respiratory system	10
4.Gastrointestinal system	10
5. Chemotherapy - antimicrobial, antiviral, antifungal and cancer	35
6.Miscellaneous	10
Total	100 marks

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short Notes:** The questions should be task oriented and to include questions on Applied aspects
- **Reasoning questions/Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs** should be single response with 4 options in answers. It should include scenario based MCQs. Avoid one liner and negative terms in the stem of the question. Avoid 'all of above' and 'none of above' in the options.

Summative Practical Examination:

Table 3: The distribution of content and marks for the practical examination

Practical I : 20 marks (written exercises)	Clinical Pharmacy Dosage forms – 5 Marks ORS – 5 Marks Dose calculation – 5 Marks Drug promotional literature – 5 Marks
Practical II :20 marks (Interaction)	Clinical Pharmacology- Communication skills – Drug counselling/therapy/motivation/storage/devices/empathy /ethics- 10 Marks ADR reporting – 10 marks
Practical III : 20marks (written exercises)	Clinical Pharmacology- Prescription writing -7.5 marks Prescription audit –CCR-7.5 marks Over the counter -OTC -5 marks
Practical IV : 20 marks (skills)	Experimental Pharmacy CAL graph interpretation – 10 marks Injection techniques – IM/SC/IM- 10 marks
Viva-Voce : 20 marks	Based on Theory and practical Portions
Total : 100 marks	

Exercises	OSPE I	Marks
1	Dose calculation	5
2	ORS	5
3	Injection techniques	10
4	DPL	5
5	Dosage forms –spotters	5
6	CAL- Graph	10
48 minutes	Total	40

Exercises	OSPE II	Marks
7	ADR reporting	10
8	Prescription	7.5
9	CCR	7.5
10	Communication	10
11	OTC	5
40 minutes		40

- The competencies dealing mainly with skills and affective domains in each subject must be included.

Viva-Voce Examination: 20 Marks

- The viva-voce examination shall carry 20 marks and all examiners will conduct the examination.
- Viva should focus on application and interpretation.
- Viva marks to be added to practicals and not theory.
- Portions of Paper I - 10 Marks; Portions of Paper II - 10 Marks

CRITERIA FOR PASSING IN PHARMACOLOGY

A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in Pharmacology.

The above guidelines from the Graduate Medical Education (Amendment), 2019 Gazetted document are incorporated in: to CBME Curriculum of Phase 2 MBBS by the Yenepoya Medical College from the academic year 2021.

SUGGESTED TEXT BOOKS

TEXT BOOKS (latest editions)

Recommended Books for Theory: Referring to more than one book is recommended.

1. K D Tripathi. Essentials of Medical Pharmacology 8 th Edition. Jaypee brothers
2. R S Satoskar, Nirmala N Rege, Raakhi K Tripathi ,Sandhya K Kamat Pharmacology and Pharmacotherapeutics. 26 th edition. Elsevier
3. H .L. Sharma & K .K Sharma- Principles of Pharmacology, 3rd edition, Paras Medical Publisher
4. Padmaja Udaykumar. Medical Pharmacology. 7th Edition

Reference books for Practical:

1. Mukta N Chowta, Ashok Shenoy, Ashwin Kamath -Manual of Practical Pharmacology for MBBS, Avichal Publishing company
2. Suyog Sindhu- CBME Pharmacology Skills OSPE Practical DOAP. Paras Medical Books
3. DD Gupta & S K Gupta- Activity book of Pharmacology.

Reference books for Theory: Latest editions -recommended

1. Goodman & Gilman's -The Pharmacological Basis of Therapeutics, ed. Laurence L Brunton, Bruce A. Chabner, Bjorn Knollman.13th Edition.
2. Lippincott Illustrated Reviews: Pharmacology ed. Karen Whalen
3. Bertram G. Katzung and Anthony J. Trevor, Basic and Clinical Pharmacology,14th Edition
4. H P Rang , J M Ritter, R J Flower, G Henderson -Rang & Dale's Pharmacology- 9th Ed

Microbiology

Goal:

The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community and healthcare settings.

Objectives:

A. Cognitive domain (Knowledge)

At the end of the course the student shall be able to:

1. Understand the role of microbial agents in health and disease
2. State the infective microorganisms causing human infections and describe the host parasite relationship
3. List pathogenic microorganisms (bacteria, virus, parasites, fungi), describe the pathogenesis of the disease and correlate the clinical manifestations with the etiological agent
4. State or indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for the transmission of the infection
5. Understanding of the immunological mechanisms in health and disease
6. Acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases
7. Plan laboratory investigations for the diagnosis of infectious diseases
8. Describe the principles of biomedical waste management
9. Acquire knowledge of the principles and application of infection control measures
10. Acquire knowledge of the emerging and re-emerging infectious agents

B. Psychomotor domain (Skills) :

At the end of the course the student shall be able to:

1. Should be able to use the correct method for relevant sample collection, storage and transport for microbiological investigations.
2. Should be able to identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
3. Perform commonly employed bedside tests for the detection of infectious agents such as blood film for malaria, filaria, gram staining, Albert staining and acid fast staining. Stool examination for identification of parasitic infections
4. Apply methods of sterilization and disinfection to control and prevent hospital and community infections.

5. Apply methods of infection control and standard precautions to control and prevent hospital and community infections.

C. AFFECTIVE DOMAIN:

1. At the end of the course the student shall be able to understand infectious diseases of national importance in relation to the clinical, therapeutic and preventive aspect.
2. Interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent
3. Recommend laboratory investigations regarding bacteriological examination of food, water, milk and air
4. Should be able to understand the analytics of infectious diseases of public health importance: Tuberculosis, Sexually transmitted diseases, HIV, Hepatitis, Malaria, Dengue, Influenza etc.
5. Should be able to conceive a syndromic approach for diagnosis of infectious diseases which will help to understand the diagnosis and management clinically.

D. Attitude, Ethics and communication skills:

At the end of the course the student should be able to:

1. Communicate with the patient with empathy and ethics regarding the diagnosis of infectious diseases
2. Should be able to function as a dynamic member of a healthcare team
3. Should be able to demonstrate respect for patient samples and maintain the confidentiality related to patient test results.
4. Demonstrate ability to educate public and patients about various aspects of drug use

E. Integration:

At the end of the course the student should be able to:

1. To integrate horizontally and vertically integrate the clinical signs and symptoms of infectious and immunological diseases/ disorders.
2. To align and integrate horizontally and vertically host-microbe-environment interactions and their alterations in disease and clinical correlations so as to provide an overall understanding of the etiological agents, their laboratory diagnosis and prevention.

F. Alignment:

At the end of the course the student should be able to:

1. Understand the infectious disease in total by aligning the immune-pathogenesis across organ systems

Table 1: LIST OF SYSTEMS INCLUDED IN MICROBIOLOGY

Sl. No	Topic	Number of Competencies	Hours Allotted
1	General Microbiology and Immunity	11	42
2	CVS and Blood	7	24
3	Gastrointestinal and hepatobiliary system	8	19
4	Musculoskeletal system skinand soft tissue infections	3	20
5	CentralNervous System infections	3	17
6	Respiratorytract infections	3	23
7	Genitourinary& Sexually transmitted infections	3	12
8	Zoonotic diseases and miscellaneous	16	36
	Total : 190 Lecture 70 SGD + Practical : 110 SDL: 10		

Table 2: COURSE CONTENT WITH COMPETENCIES

Number	COMPETENCY The student should be able to	Domain K/S/A /C	Level K/KH/S H/ P	Core (Y/N)
MICROBIOLOGY				
Topic: General Microbiology and Immunity Number of competencies: (11) Number of procedures that require certification : (01)				
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	K	K H	Y
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	S	P	Y
MI1.3	Describe the epidemiological basis of common infectious diseases	K	K H	Y
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	K H	Y
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	K H	Y
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K	K	Y
MI1.7	Describe the immunological mechanisms in health	K	K H	Y
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	K H	Y
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	K	KH	Y
MI1.11	Describe the immunological mechanisms of transplantation and tumor immunity	K	KH	Y
Topic: CVS and Blood Number of competencies: (7) Number of procedures that require certification : (NIL)				
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	S	SH	Y

MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing	K	KH	Y
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y

Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/P	Core (Y/N)
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y

Topic: Gastrointestinal and hepatobiliary system Number of competencies: (8)

MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y

Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/P	Core (Y/N)
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y

Topic: Musculoskeletal system skin and soft tissue infections Number of competencies: (3)

MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y
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MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y
Topic: Central Nervous System infections		Number of competencies: (3)		
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y
Topic: Respiratory tract infections		Number of competencies: (3)		
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y
Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/P	Core (Y/N)
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y
Topic: Gastrointestinal and hepatobiliary system		Number of competencies: (8)		
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y

Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/ P	Core (Y/N)
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y
Topic: Musculoskeletal system skin and soft tissue infections		Number of competencies: (3)		
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y
Topic: Central Nervous System infections		Number of competencies: (3)		
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y
Topic: Respiratory tract infections		Number of competencies: (3)		
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y
Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/ P	Core (Y/N)
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y
Topic: Gastrointestinal and hepatobiliary system		Number of competencies: (8)		
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y

MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y
Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S H/ P	Core (Y/N)
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y
Topic: Musculoskeletal system skin and soft tissue infections		Number of competencies: (3)		
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y
Topic: Central Nervous System infections		Number of competencies: (3)		
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y
Topic: Respiratory tract infections		Number of competencies: (3)		
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH / P	Core (Y/N)
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	S	P	Y
Topic: Genitourinary & Sexually transmitted infections		Number of competencies: (3)		
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	K	KH	Y
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y
Topic: Zoonotic diseases and miscellaneous		Number of competencies: (16)		
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y

Number	COMPETENCY The student should be able to	Domain K/S/A/ C	Level K/KH/S / P	Core (Y/N)
MI8.14	Demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseases	K/S	SH	Y
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y
	*causative agents of Infectious diseases are inclusive of bacterial, viral, parasites and fungal agents causing various clinical conditions.			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.				
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation				
Integration				
Biochemistry				
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y
Pathology				
PA7.5	Describe the immunology and the immune response to cancer	K	KH	N
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y

PRACTICAL

Table 3: List of practical sessions

Sl.No.	Topic	Competency No.
1	<ul style="list-style-type: none"> • Microscopy • Direct methods of bacterial detection • Simple staining • Hanging drop 	MI 1.1 MI 1.2
2	<ul style="list-style-type: none"> • General principles of Laboratory diagnosis of Bacterial diseases.(Sample collection, transportation, bacterial identification methods in general) • Indirect methods of infectious disease diagnosis (Immunological diagnostic tests) 	MI 8.9, MI 8.10 MI 8.7 MI 8.11
3	<ul style="list-style-type: none"> • Bacterial culture: Culture media, methods and identification techniques (conventional and automated) 	MI 1.1
4	<ul style="list-style-type: none"> • Antibiotic sensitivity testing 	MI 1.6
5	<ul style="list-style-type: none"> • General principles of laboratory diagnosis of Viral diseases 	MI 1.8, MI 8.15
6	<ul style="list-style-type: none"> • General principles of laboratory diagnosis of Parasitic diseases 	MI 1.1
7	<ul style="list-style-type: none"> • General principles of laboratory diagnosis of Fungal diseases 	MI 1.2
8	<ul style="list-style-type: none"> • Sterilization & Disinfection 	MI 1.1
9	<ul style="list-style-type: none"> • Demonstration of respect for patient samples sent for laboratory investigations 	MI8.5, MI8.6, MI8.7, MI8.8
10	<ul style="list-style-type: none"> • Biomedical waste management 	MI 8.7
11	<ul style="list-style-type: none"> • Needle stick injuries 	MI 8.7
BLOODSTREAM AND CARDIOVASCULAR SYSTEM INFECTIONS		
12	Laboratory diagnosis of Rheumatic heart disease, Infective endocarditis and sepsis	MI2.1, MI2.2, MI2.3
13	Laboratory diagnosis of Brucellosis, Leptospirosis, Dengue fever, Scrub typhus, Candidemia	MI4.3, MI8.1
14	Laboratory diagnosis of Enteric fever	MI3.3, MI3.4
15	Laboratory diagnosis of Malaria & Filaria	MI2.5, MI2.6
16	Laboratory diagnosis of Leishmania & Trypanosoma	MI2.5, MI2.6
17	a. Laboratory diagnosis of HIV infection b. Confidentiality pertaining to patient's identity in laboratory result**	MI2.7 MI8.12, MI8.14
GASTROINTESTINAL AND HEPATOBILIARY SYSTEM		
18	Laboratory diagnosis of Diarrhoea: Travellers diarrhea, Antibiotic associated diarrhoea	MI1.2, MI3.1, MI3.2
19	Laboratory diagnosis of Dysentery (Bacillary & Parasitic)	MI1.2, MI3.1, MI3.2
20	Laboratory Diagnosis of Intestinal Protozoan infections	MI1.2, MI2.4, MI2.5, MI3.1, MI3.2
21	Laboratory Diagnosis of Intestinal helminthic infections	MI1.2, MI2.4, MI2.5, MI3.1, MI3.2
22	Laboratory diagnosis of Viral hepatitis	MI3.7, MI3.8
SKIN AND SOFT TISSUE INFECTIONS		

23	Laboratory diagnosis of skin infections-I (Bacterial: Furuncle, cellulitis, Surgical site infection, Burn wound infection, Leprosy)	MI4.3
24	Laboratory diagnosis of skin infections-II (Fungal and Viral infections)	MI4.3
25	Laboratory diagnosis of musculoskeletal infections (Arthritis, Osteomyelitis)	MI4.2 MI1.2
CENTRAL NERVOUS SYSTEM INFECTIONS		
26	Laboratory diagnosis of Meningitis (Pyogenic, Tubercular, Cryptococcal & Aseptic)	MI5.3
27	Laboratory diagnosis of Encephalitis	MI5.3
RESPIRATORY TRACT INFECTIONS		
28	Laboratory diagnosis of Upper respiratory tract infections	MI6.2
29	Laboratory diagnosis of Lower respiratory tract infections	MI6.2, MI6.3
GENITOURINARY & SEXUALLY TRANSMITTED INFECTIONS		
30	Laboratory diagnosis of Urinary tract infections	MI7.1, MI7.2
31	Laboratory diagnosis of Genitourinary and Sexually transmitted diseases (Urethritis, Genital ulcers)	MI7.3
MISCELLANEOUS		
32	Infection control practices and use of PPE	MI 8.7
33	Appropriate method for sample collection and performance of laboratory tests of microbial agents causing infectious diseases	MI 8.10
34	Demonstrate respect for patient samples and confidentiality pertaining to patient identification in laboratory results	MI8.11 MI 8.14

SKILL CERTIFICATION:

Table 4: List of certifiable skills:

SI. No.	Competency Number	COMPETENCY	Number required to certify
1	MI1.2	Perform and identify the different causative agents of Infectious diseases (Gram Stain, ZN stain and stool routine microscopy)	5 each
2	MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	3
3	MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	3 each
4	MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipment (PPE)	3 each in (Hand hygiene & PPE)

Table 5: TEACHING HOURS AND METHODS:

Interactive lectures	70
Small group teaching/tutorials/integrated learning/practical	110
Self directed learning	10
Pandemic module	6
Total	196

ATTENDANCE:

- Attendance requirements are 75% in theory and 80% in practical in each subject for eligibility to appear for the examinations in Pathology, Pharmacology and Microbiology subjects.
- In subjects that are taught in more than one phase (In phase 2, Community Medicine, Forensic Medicine and the other clinical subjects of Internal Medicine, General Surgery and Obstetrics & Gynecology) the learner must have 75% attendance in theory and 80% in practical/clinical postings in each phase of instruction in that subject.
- 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in Phase II
- Biometric attendance of the students will be recorded by the IT.

INTERNAL ASSESSMENT:

- Students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40% marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject.
- When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment.
- Internal assessment marks will reflect as separate head of passing at the summative examination.

Table 6: Internal Assessment (IA) components and distribution of marks

THEORY			
	I IA	II IA	III IA
Theory	80	80	80
Multiple choice questions	1×20=20	1×20=20	1×20=20
Total theory marks	100	100	100
PRACTICAL			
Practical	60	60	60
Viva-voce	20	20	20
Formative assessment*	20	20	20
Total practical marks	100	100	100

- *Formative assessment includes marks secured in seminars presented, participation in quizzes, problem solving exercises, record maintenance, log book completion, professionalism, and behaviour

Table 7: Blueprint for Formative assessment

Content	Marks
Assignments/ E-tests/Seminar presentation/ Case based discussions	5 marks (25%)
Log book maintenance, timely completion and submission	5 marks (25%)
Record book maintenance, timely completion and submission	5 marks (25%)
Professionalism and skill certification	5 marks (25%)
Total Marks	20

Table 8: Type, number of questions and distribution of marks for 100 marks written theory paper

Type of question	Number of questions	Marks for each question	Total marks
Long Essay (LE)	2	10	20
Short Essay (SE)	9	5	45
Short Answer (SA)	5	3	15
MCQs *	20	1	20
Total			100

- **Long essay questions:** The question should pose a clinical/practical problem with case vignette to the students and require them to apply knowledge and integrate it with disciplines. The question stem should be structured and marking distribution should be provided.
- **Short notes:** The questions should be task oriented and to include questions on applied aspects
- **Reasoning questions/ Short Answers:** These should test integration, clinical reasoning and analytic ability of the student.
- **MCQs*** 5 MCQs will be case based. For all the MCQs stem should be single response type, well designed, avoid distracters and with 4 options in answers.
- The competencies dealing mainly with skills and affective domains in each subject must be included.
- **Practical examination** to include the component of Objective Structured Practical Examination (OSPE).
- There should be at least **one assessment based on direct observation of skills, attitudes and communication at all levels.**
- There should be at least one short question from **AETCOM** in each subject in internal assessment. AETCOM question should be based on competencies acquired during teaching of the AETCOM module.

UNIVERSITY EXAMINATION:

- Learner must score mandatory 50% marks separately in theory and practical (practical = practical + viva)
- In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.
- Nature of questions will include structured essays (Long Essay- LE), Short Essay (SE), Reasoning questions/Short Answer Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). MCQs shall be accorded a weightage of not more than 20% of the total theory marks.
- 2 LEs of 10 marks each, 9 Short Essays of 5 marks each, 5 Reasoning Questions/SAQs of 3 marks each and 20 Multiple Choice Questions (MCQs) of 1 mark each will be included for 100 marks question paper.

PHASE II MBBS SCHEME OF UNIVERSITY EXAMINATION

Table 9: Summative assessment examination components and distribution of marks

PHASE II UNIVERSITY EXAMINATION	
THEORY	
Written Theory Paper	2 Papers (Paper I and Paper II) of 80 marks each 2×80=160
Multiple Choice Questions (MCQ)	1×20=20 marks each in Paper I and Paper II 2×20 = 40
Total	200 marks
PRACTICAL	
Practical exercises	80 marks
Viva Voce	20 marks
Total practical	100 marks
Final Internal Assessment*	100 marks
TOTAL MARKS	400 marks

***Final IA marks will be calculated as follows:**

$$\text{Final Internal Assessment Marks} = \left[\frac{\text{Marks obtained in 3 IA Theory and practical}}{600 (200 \times 3)} + \frac{\text{Sum of marks secured in all unit tests, E Tests}}{\text{Total Marks}} \right] = \text{Converted to 100 Marks}$$

Pre University/pre final exam is mandatory

- Pre University/pre final exam will be conducted after IIIrd Internal assessment and will be in line with the University examination
- Pre university/Pre final exam can be considered as a makeup exam in case a student is not meeting the eligibility criteria.

Summative Theory Examination – 200 marks

Table 10: Marks distribution for theory question paper (Includes MCQs)

Theory	Topics	Questions	Marks allotment
PAPER I	1. General microbiology & Immunology 2. CVS & Blood 3. Gastrointestinal & hepatobiliary system 4. Musculoskeletal system, Skin & soft tissue infections	Long Essay (LE)	2x10=20
		Short Essay (SE)	9x5=45
		Short answer Question (SAQ)	3x5=15
		MCQs	20x1=20
		Total	100
PAPER II	1. Central Nervous system 2. Respiratory System 3. Genitourinary & Sexually transmitted infections 4. Zoonotic diseases and Miscellaneous	Long Essay (LE)	2x10=20
		Short Essay (SE)	9x5=45
		Short answer Question (SAQ)	3x5=15
		MCQs	20x1=20
		Total	100

TOPIC WISE MARKS DISTRIBUTION

Table 11: Topic wise marks distribution: Paper I

Topic	Long essay (LE)	Short essay (SE)	Short answer question	MCQs	Total marks
General microbiology & Immunology (GMI)	01 GMI Or CVB	If LE then 03 If no LE then 05	01	7	35
CVS & Blood (CVB)		If LE then 01 If no LE then 03	02	4	25
Gastrointestinal & hepatobiliary system (GIH)	01 GIH or MS	If LE then 01 If no LE then 03	01	7	25
Musculoskeletal system, skin and soft tissue infections (MS)		If LE then Nil If no LE then 02	01	2	15

Table 12: Topic wise marks distribution: Paper II

Topic	Long essay (LE)	Short essay (SE)	Short answer question	MCQs	Total marks
Central Nervous System infections (CNS)	01 CNS Or GUS	If LE then 01 If no LE then 03	1	5	23
Genitourinary & sexually transmitted diseases (GUS)		If LE then 01 If no LE then 03	01	5	23
Respiratory tract infections (RS)	01 RS or ZM	If LE then 01 If no LE then 03	01	5	23
Zoonotic diseases and Miscellaneous (ZM)		If LE then 02 If no LE then 04	02	5	31

PRACTICAL SUMMATIVE ASSESSMENT

As per NMC 100 marks with viva

- Practical – 80
- Viva – 20

DISTRIBUTION OF MARKS FOR DIFFERENT EXERCISES

Exercise	Number	Marks
Spotters	10	10
Gram's stain	1	15
ZN/Alberts stain	1	15

Stool examination	1	10
Case Based (Applied Exercise) including AETCOM	2 cases One each from 2 different systems	10 10
OSPE including AETCOM	1	10
VIVA		20
TOTAL		100

SPOTTERS DISTRIBUTION

Section	Number
Culture Media (Inoculated & Un-inoculated)	3
Instruments	2
Parasitology slide/ chart/ specimen	1
Slides (bacteriology/ virology/mycology)	2
Case based spotter	2
TOTAL	10

CRITERIA FOR PASSING IN MICROBIOLOGY:

50% in theory and Practical separately with a minimum of 40% in each theory paper

SUGGESTED TEXT BOOKS

Books for Theory:

1. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2021, Jaypee Publishers
2. Lippincott Illustrated Reviews Microbiology, South Asian Edition by Cynthia Nau Cornelissen, Marcia Metzgar Hobbs SAE editors Sumathi Muralidharan & Rohith Chawla As per CBME
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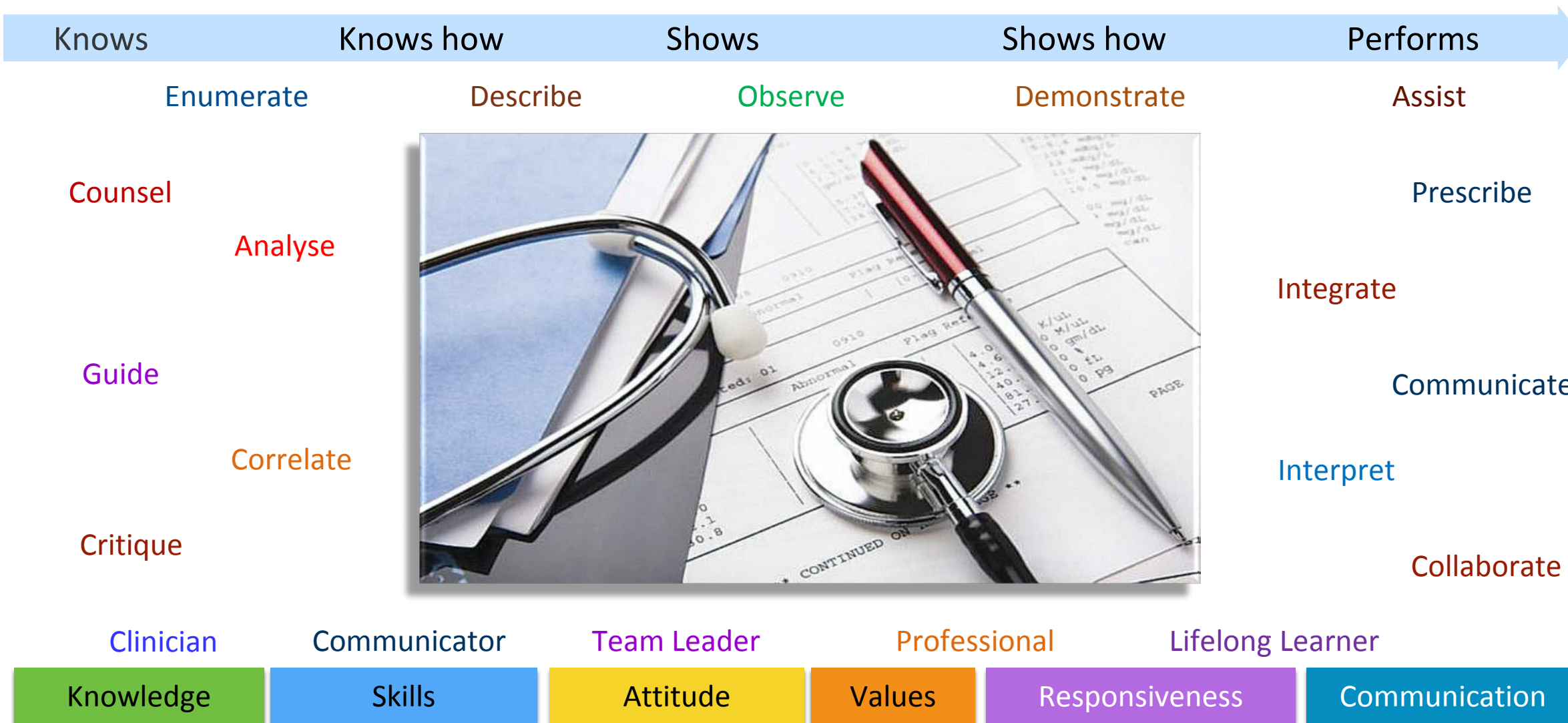
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2019-20



MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-I (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE**

2018



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BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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The Competency based Undergraduate Curriculum for MBBS students prepared by subject experts was scrutinized by members of the Reconciliation Board and Academic Cell. The contents, embodied in this document, have received Copyright from the Register of Copyrights, Copyright Office, Government of India with Registration Number L-63913/2016.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to 'perform' these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a "living document" that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2.3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary									
Name of Topic: General Physiology									
Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM15.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Description of competency

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture → small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately	
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase I Phase II student must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

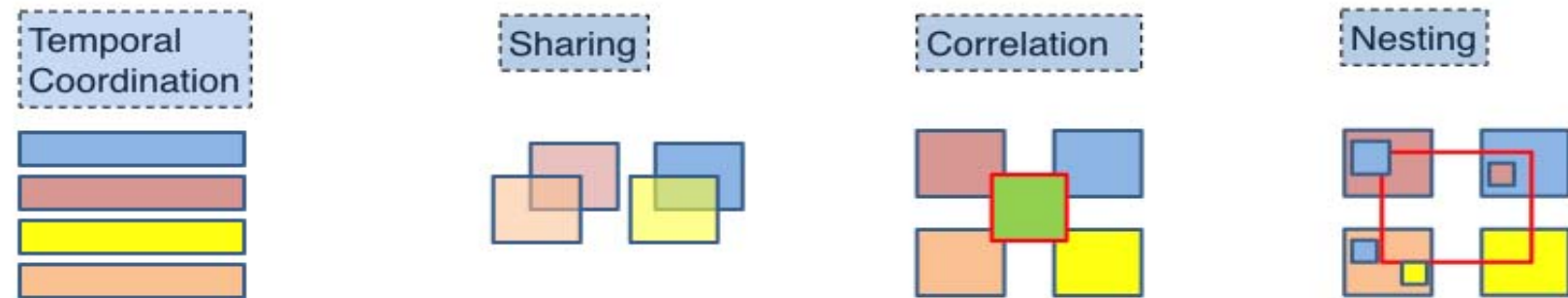


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

1. **Goal:** A projected state of affairs that a person or system plans to achieve.

In other words: Where do you want to go? or What do you want to become?

2. **Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.

In other words: What should you have? or What should have changed?

3. **Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.

In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word 'perform' or 'do' is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume I

Competency based Undergraduate Curriculum in Pre-clinical and Para-clinical subjects

HUMAN ANATOMY (CODE: AN)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
Topic: Anatomical terminology		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN1.1	Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movement in our body	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/skills assessment			
AN1.2	Describe composition of bone and bone marrow	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of bones & Joints		Number of competencies: (6)			Number of procedures for certification: (NIL)				
AN2.1	Describe parts, blood and nerve supply of a long bone	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN2.2	Enumerate laws of ossification	K	KH	N	Lecture	Written			
AN2.3	Enumerate special features of a sesamoid bone	K	KH	N	Lecture	Written			
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.6	Explain the concept of nerve supply of joints & Hilton's law	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of Muscle		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN3.2	Enumerate parts of skeletal muscle and differentiate between A116tendons and aponeuroses with examples	K	KH	Y	Lecture	Written/ Viva voce			
AN3.3	Explain Shunt and spurt muscles	K	KH	N	Lecture	Written			
Topic: General features of skin and fascia		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN4.1	Describe different types of skin & dermatomes in body	K	KH	N	Lecture, DOAP session	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.3	Describe superficial fascia along with fat distribution in body	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	
Topic: General features of the cardiovascular system		Number of competencies: (8)			Number of procedures for certification: (NIL)				
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.3	List general differences between arteries & veins	K	KH	Y	Lecture	Written/ Viva voce			
AN5.4	Explain functional difference between elastic, muscular arteries and arterioles	K	KH	Y	Lecture	Written/ Viva voce			
AN5.5	Describe portal system giving examples	K	KH	Y	Lecture	Written/ Viva voce			
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
Topic: General Features of lymphatic system		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN6.1	List the components and functions of the lymphatic system	K	KH	N	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN6.2	Describe structure of lymph capillaries & mechanism of lymph circulation	K	KH	N	Lecture	Written			
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
Topic: Introduction to the nervous system		Number of competencies: (8)			Number of procedures for certification: (NIL)				
AN7.1	Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems	K	KH	Y	Lecture	Written			
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.4	Describe structure of a typical spinal nerve	K	KH	Y	Lecture	Written/ Viva voce			
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN7.7	Describe various type of synapse	K	KH	N	Lecture	Written			Physiology
AN7.8	Describe differences between sympathetic and spinal ganglia	K	KH	N	Lecture	Written			
Topic: Features of individual bones (Upper Limb)		Number of competencies: (6)			Number of procedures for certification: (NIL)				
AN8.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce/ Practicals/ OSPE			
AN8.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN8.3	Enumerate peculiarities of clavicle	K	KH	Y	Lecture, DOAP session	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical DOAP session, Small group teaching	Viva voce Practicals		Orthopedics	
AN8.5	Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform	K/S	SH	Y	Practical, F91 DOAP session, Small group teaching	Viva voce Practicals			
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	
Topic: Pectoral region		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN9.1	Describe attachment, nerve supply & action of pectoralis major and pectoralis minor	K	KH	Y	Lecture, Practical	Written			
AN9.2	Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN9.3	Describe development of breast	K	KH	N	Lecture	Written			
Topic: Axilla, Shoulder and Scapular region		Number of competencies: (13)			Number of procedures for certification: (NIL)				
AN10.1	Identify & describe boundaries and contents of axilla	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.2	Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.3	Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.5	Explain variations in formation of brachial plexus	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN10.8	Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.9	Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation	K	KH	N	Lecture	Written			
AN10.10	Describe and identify the deltoid and rotator cuff muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.11	Describe & demonstrate attachment of serratus anterior with its action	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.12	Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Orthopedics	
AN10.13	Explain anatomical basis of Injury to axillary nerve during intramuscular injections	K	KH	N	Lecture	Viva voce			
Topic: Arm & Cubital fossa		Number of competencies: (6)			Number of procedures for certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN11.1	Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN11.5	Identify & describe boundaries and contents of cubital fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.6	Describe the anastomosis around the elbow joint	K	KH	N	Lecture	Written			
Topic: Forearm & hand		Number of competencies: (15)			Number of procedures for certification: (NIL)				
AN12.1	Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.3	Identify & describe flexor retinaculum with its attachments	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.4	Explain anatomical basis of carpal tunnel syndrome	K	KH	Y	Lecture	Written/ Viva voce			
AN12.5	Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.6	Describe & demonstrate movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.7	Identify & describe course and branches of important blood vessels and nerves in hand	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.9	Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.15	Identify & describe extensor expansion formation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: General Features, Joints, radiographs & surface marking		Number of competencies: (8)			Number of procedures for certification: (NIL)				
AN13.1	Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage	K	KH	Y	Lecture	Written/ Viva voce			
AN13.2	Describe dermatomes of upper limb	K	KH	N	Lecture	Written/ Viva voce			
AN13.3	Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN13.4	Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint	K	KH	N	Lecture	Written			
AN13.5	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN13.6	Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN13.7	Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN13.8	Describe development of upper limb	K	KH	N	Lecture	Written			
uil									
AN14.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce			
AN14.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/ Practicals		Forensic Medicine & Toxicology	
AN14.4	Identify and name various bones in the articulated foot with individual muscle attachment	K/S	SH	N	Practical, DOAP session, Small group teaching	Viva voce/ Practicals			
Topic: Front & Medial side of thigh Number of competencies: (5) Number of procedures for certification: (NIL)									
AN15.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN15.2	Describe and demonstrate major muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN15.5	Describe and demonstrate adductor canal with its content	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Topic: Gluteal region & back of thigh

Number of competencies: (6)

Number of procedures for certification: (NIL)

AN16.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.4	Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.5	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.6	Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Topic: Hip Joint

Number of competencies: (3)

Number of procedures for certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN17.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN17.2	Describe anatomical basis of complications of fracture neck of femur	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Knee joint, Anterior compartment of leg & dorsum of foot Number of competencies: (7) Number of procedures for certification: (NIL)									
AN18.1	Describe and demonstrate major muscles of anterior compartment of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.2	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.5	Explain the anatomical basis of locking and unlocking of the knee joint	K	KH	Y	Small group teaching	Written/ Viva voce			
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Back of Leg & Sole Number of competencies: (7) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN19.1	Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN19.2	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.5	Describe factors maintaining importance arches of the foot with its importance	K	KH	Y	Lecture	Written/ Viva voce			
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: General Features, Joints, radiographs & surface marking		Number of competencies: (10)			Number of procedures for certification: (NIL)				
AN20.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.2	Describe the subtalar and transverse tarsal joints	K	KH	N	Lecture, DOAP session	Written/ Viva voce			
AN20.3	Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN20.7	Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine, General Surgery	
AN20.10	Describe basic concept of development of lower limb	K	KH	N	Lecture	Viva voce			
Topic: Thoracic cage Number of competencies: (11) Number of procedures for certification: (NIL)									
AN21.1	Identify and describe the salient features of sternum, typical rib, 1 st rib and typical thoracic vertebra	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.2	Identify & describe the features of 2 nd , 11 th and 12 th ribs, 1 st , 11 th and 12 th thoracic vertebrae	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.3	Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN21.4	Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.5	Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.6	Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN21.7	Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery	K	KH	N	Lecture	Written			
AN21.8	Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN21.10	Describe costochondral and interchondral joints	K	KH	N	Lecture	Written			
AN21.11	Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum	K	KH	Y	Practical, Lecture	Written/ Viva voce			
Topic: Heart & Pericardium Number of competencies: (7) Number of procedures for certification: (NIL)									
AN22.1	Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.5	Describe & demonstrate the formation, course, tributaries and termination of coronary sinus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.6	Describe the fibrous skeleton of heart	K	KH	Y	Lecture	Written			
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
Topic: Mediastinum Number of competencies: (7) Number of procedures for certification: (NIL)									
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.3	Describe & demonstrate origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.4	Mention the extent, branches and relations of arch of aorta & descending thoracic aorta	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN23.5	Identify & Mention the location and extent of thoracic sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.6	Describe the splanchnic nerves	K	KH	N	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
Topic: Lungs & Trachea Number of competencies: (6) Number of procedures for certification: (NIL)									
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.4	Identify phrenic nerve & describe its formation & distribution	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
AN24.5	Mention the blood supply, lymphatic drainage and nerve supply of lungs	K	KH	Y	Lecture	Written/ Viva voce			
AN24.6	Describe the extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea	K	KH	N	Lecture	Written			
Topic: Thorax Number of competencies: (9) Number of procedures for certification: (01)									
AN25.1	Identify, draw and label a slide of trachea and lung	K/S	SH	Y	Lecture, Practical	Written/ skill assessment	1		
AN25.2	Describe development of pleura, lung & heart	K	KH	Y	Lecture	Written			
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula B198	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.6	Mention development of aortic arch arteries, SVC, IVC and coronary sinus	K	KH	N	Lecture	Written/ Viva voce			
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
Topic: Skull osteology Number of competencies: (7) Number of procedures for certification: (NIL)									
AN26.1	Demonstrate anatomical position of skull, Identify and locate individual skull bones in skull	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.2	Describe the features of norma frontalis, verticalis, occipitalis, lateralis and basalis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.3	Describe cranial cavity, its subdivisions, foramina and structures passing through them	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.4	Describe morphological features of mandible	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.5	Describe features of typical and atypical cervical vertebrae (atlas and axis)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.6	Explain the concept of bones that ossify in membrane	K	KH	N	Lecture	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN26.7	Describe the features of the 7 th cervical vertebra	K/S	SH	N	DOAP session	Viva voce			
Topic: Scalp		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN27.2	Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses	K	KH	Y	Lecture	Written			
Topic: Face & parotid region		Number of competencies: (10)			Number of procedures for certification: (NIL)				
AN28.1	Describe & demonstrate muscles of facial expression and their nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.2	Describe sensory innervation of face	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.3	Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.4	Describe & demonstrate branches of facial nerve with distribution	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.5	Describe cervical lymph nodes and lymphatic drainage of head, face and neck	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.6	Identify superficial muscles of face, their nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior triangle of neck Number of competencies: (4) Number of procedures for certification: (NIL)									
AN29.1	Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN29.4	Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	K/S	SH	N	Lecture, Practical	Written/ Viva voce			
Topic: Cranial cavity Number of competencies: (5) Number of procedures for certification: (NIL)									
AN30.1	Describe the cranial fossae & identify related structures	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.3	Describe & identify dural folds & dural venous sinuses	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN30.4	Describe clinical importance of dural venous sinuses	K	KH	Y	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Orbit		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN31.1	Describe & identify extra ocular muscles of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.2	Describe & demonstrate nerves and vessels in the orbit	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.4	Enumerate components of lacrimal apparatus	K	KH	Y	Lecture	Written			
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
Topic: Anterior Triangle		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN32.1	Describe boundaries and subdivisions of anterior triangle	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN32.2	Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Temporal and Infratemporal regions		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN33.1	Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN33.3	Describe & demonstrate articulating surface, type & movements of temporomandibular joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	
Topic: Submandibular region Number of competencies: (2) Number of procedures for certification: (NIL)									
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
Topic: Deep structures in the neck Number of competencies: (10) Number of procedures for certification: (NIL)									
AN35.1	Describe the parts, extent, attachments, modifications of deep cervical fascia	K	KH	Y	Lecture	Written			
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN35.3	Demonstrate & describe the origin, parts, course & branches subclavian artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.4	Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.5	Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN35.6	Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.7	Describe the course and branches of IX, X, XI & XII nerve in the neck	K	KH	Y	Lecture	Written			
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN35.10	Describe the fascial spaces of neck	K	KH	N	Lecture	Written			
Topic: Mouth, Pharynx & Palate		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN36.1	Describe the 1) morphology, relations, blood supply and applied anatomy of palatine tonsil 2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of Waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
Topic: Cavity of Nose		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Larynx		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
Topic: Tongue		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN39.1	Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
Topic: Organs of hearing and equilibrium		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Topic: Eyeball		Number of competencies: (3)			Number of procedures for certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Back Region		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN42.1	Describe the contents of the vertebral canal	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.2	Describe & demonstrate the boundaries and contents of Suboccipital triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.3	Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	K	KH	N	Lecture	Written			
Topic: Head & neck Joints, Histology, Development, Radiography & Surface marking		Number of competencies: (9)			Number of procedures for certification: (NIL)				
AN43.1	Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN43.2	Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN43.3	Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	K/S	SH	N	Lecture, Practical	Written/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN43.4	Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	K	KH	Y	Lecture	Written/ Viva voce			
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve	K/S	SH	N	Practical	Viva voce/ skill assessment		General Surgery	
AN43.7	Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x-ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
Topic: Anterior abdominal wall Number of competencies: (7) Number of procedures for certification: (NIL)									
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.2	Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN44.3	Describe the formation of rectus sheath and its contents	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior abdominal wall		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN45.1	Describe Thoracolumbar fascia	K	KH	Y	Lecture	Written			
AN45.2	Describe & demonstrate Lumbar plexus for its root value, formation & branches	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN45.3	Mention the major subgroups of back muscles, nerve supply and action	K	KH	N	Lecture	Written			
Topic: Male external genitalia		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN46.2	Describe parts of Epididymis	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.3	Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.4	Explain the anatomical basis of Varicocoele	K	KH	N	Lecture	Written		General Surgery	
AN46.5	Explain the anatomical basis of Phimosis & Circumcision	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Abdominal cavity		Number of competencies: (14)			Number of procedures for certification: (NIL)				
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.8	Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.9	Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.11	Explain the anatomic basis of hematemesis& caput medusae in portal hypertension	K	KH	Y	Lecture,	Written/ Viva voce		General Surgery	
AN47.12	Describe important nerve plexuses of posterior abdominal wall	K	KH	N	Lecture	Written			
AN47.13	Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
Topic: Pelvic wall and viscera Number of competencies: (8) Number of procedures for certification: (NIL)									
AN48.1	Describe & identify the muscles of Pelvic diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.2	Describe & demonstrate the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.3	Describe & demonstrate the origin, course, important relations and branches of internal iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.4	Describe the branches of sacral plexus	K	KH	Y	Lecture	Written			
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe the neurological basis of Automatic bladder	K	KH	N	Lecture	Written		General Surgery	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
Topic: Perineum Number of competencies: (5) Number of procedures for certification: (NIL)									
AN49.1	Describe & demonstrate the superficial & deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.3	Describe & demonstrate Perineal membrane in male & female	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Vertebral column Number of competencies: (4) Number of procedures for certification: (NIL)									
AN50.1	Describe the curvatures of the vertebral column	K	KH	Y	Lecture	Written/ Viva voce			
AN50.2	Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Topic: Sectional Anatomy Number of competencies: (2) Number of procedures for certification: (NIL)									
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
Topic: Histology & Embryology Number of competencies: (8) Number of procedures for certification: (NIL)									
AN52.1	Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.2	Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.3	Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum	K/S	SH	N	Lecture, Practical	Written/ skill assessment			
AN52.4	Describe the development of anterior abdominal wall	K	KH	N	Lecture	Written/ Viva voce			
AN52.5	Describe the development and congenital anomalies of Diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN52.7	Describe the development of Urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Osteology		Number of competencies: (4)			Number of procedures for certification: (NIL)				
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.4	Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
Topic: Radiodiagnosis		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN54.1	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Topic: Surface marking		Number of competencies: (2)			Number of procedures for certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN55.1	Demonstrate the surface marking of; Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring , McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
Topic: Meninges & CSF		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
Topic: Spinal Cord		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN57.1	Identify external features of spinal cord	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN57.2	Describe extent of spinal cord in child & adult with its clinical implication	K	KH	Y	Lecture	Written/ Viva voce			
AN57.3	Draw & label transverse section of spinal cord at mid-cervical & mid-thoracic level	K	KH	Y	Lecture	Written/ Viva voce			
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Medulla Oblongata		Number of competencies: (4)			Number of procedures for certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN58.1	Identify external features of medulla oblongata	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			
AN58.2	Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) ION	K	KH	Y	Lecture	Written/ Viva voce			
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Pons Number of competencies: (3) Number of procedures for certification: (NIL)									
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN59.2	Draw & label transverse section of pons at the upper and lower level	K	KH	Y	Lecture	Written/ Viva voce			
AN59.3	Enumerate cranial nerve nuclei in pons with their functional group	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Cerebellum Number of competencies: (3) Number of procedures for certification: (NIL)									
AN60.1	Describe & demonstrate external & internal features of cerebellum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN60.2	Describe connections of cerebellar cortex and intracerebellar nuclei	K	KH	Y	Lecture	Written/ Viva voce			
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Midbrain Number of competencies: (3) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN61.1	Identify external & internal features of midbrain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN61.2	Describe internal features of midbrain at the level of superior & inferior colliculus	K	KH	Y	Lecture	Written/ Viva voce			
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Cranial nerve nuclei & Cerebral hemispheres Number of competencies: (6) Number of procedures for certification: (NIL)									
AN62.1	Enumerate cranial nerve nuclei with its functional component	K	KH	Y	Lecture	Written/ Viva voce			
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
Topic: Ventricular System Number of competencies: (2) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
Topic: Histology & Embryology Number of competencies: (3) Number of procedures for certification: (NIL)									
AN64.1	Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN64.2	Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum	K	KH	Y	Lecture	Written/ Viva voce			
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
Topic: Epithelium histology Number of competencies: (2) Number of competencies for certification: (01)									
AN65.1	Identify epithelium under the microscope & describe the various types that correlate to its function	K/S	P	Y	Lecture, Practical	Written/ skill assessment	1		
AN65.2	Describe the ultrastructure of epithelium	K	KH	N	Lecture, Practical	Written			
Topic: Connective tissue histology Number of competencies: (2) Number of procedures for certification: (NIL)									
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
Topic: Muscle histology Number of competencies: (3) Number of procedures for certification: (NIL)									
AN67.1	Describe & identify various types of muscle under the microscope	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Topic: Integumentary System		Number of competencies: (1)			Number of procedures for certification: (NIL)				
AN72.1	Identify the skin and its appendages under the microscope and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
Topic: Chromosomes		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN73.1	Describe the structure of chromosomes with classification	K	KH	Y	Lecture	Written			
AN73.2	Describe technique of karyotyping with its applications	K	KH	Y	Lecture	Written			
AN73.3	Describe the Lyon's hypothesis	K	KH	Y	Lecture	Written			
Topic: Patterns of Inheritance		Number of competencies: (4)			Number of procedures for certification: (NIL)				
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
Topic: Principle of Genetics, Chromosomal Aberrations & Clinical Genetics		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Second week of development		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN78.1	Describe cleavage and formation of blastocyst	K	KH	Y	Lecture	Written			
AN78.2	Describe the development of trophoblast	K	KH	Y	Lecture	Written			
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.4	Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate	K	KH	Y	Lecture	Written			
AN78.5	Describe in brief abortion; decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Toic: 3rd to 8th week of development		Number of competencies: (6)			Number of procedures for certification: (NIL)				
AN79.1	Describe the formation & fate of the primitive streak	K	KH	Y	Lecture	Written			
AN79.2	Describe formation & fate of notochord	K	KH	Y	Lecture	Written			
AN79.3	Describe the process of neurulation	K	KH	Y	Lecture	Written			
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Fetal membranes		Number of competencies: (7)			Number of procedures for certification: (NIL)				
AN80.1	Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & decidua	K	KH	Y	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN80.2	Describe formation & structure of umbilical cord	K	KH	Y	Lecture	Written			
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Prenatal Diagnosis		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Topic: Ethics in Anatomy		Number of competencies: (1)			Number of procedures for certification: (NIL)				
AN 82.1	Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue	S	SH	Y	Group Activity	NIL		AETCOM	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Physiology									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.1	Describe the functional Anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, Sensory system, motor system, reflexes, Cranial Nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment / Viva voce / OSCE	1 each (total 5)		Human Anatomy
Biochemistry									
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Pathology									
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group	Written/ Viva voce		Human Anatomy, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy Physiology, General Medicine, General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
Forensic Medicine & Toxicology									
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy.	K	KH	Y	Lectures, Small group discussion, Autopsy, DOAP session	Written/Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.1	Identification Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico-legal aspects of age.	K	KH	Y	Lectures, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/skill assessment		Human Anatomy	
Anesthesiology									
AS4.2	Describe the Anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS5.2	Describe the correlative Anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy Physiology	
ENT									
EN1.1	Describe the Human Anatomy & physiology of ear, nose, throat, head & neck.	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		Human Anatomy	
Ophthalmology									
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.1	Enumerate describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
General Medicine									
IM3.1	Define discuss describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small Group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ short case		Human Anatomy	General Surgery
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy	
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Human Anatomy	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	
Obstetrics & Gynaecology									
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG4.1	Describe and discuss the basic embryology of fetus , factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/ skill assessment		Human Anatomy	
General Surgery									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.1	Describe the Applied anatomy, and physiology of thyroid	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.5	Describe the applied anatomy of parathyroid.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU25.1	Describe applied anatomy appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.2	Describe the clinical features, investigations and principles of management of congenital anomalies of Genitourinary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.5	Describe the applied anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Human Anatomy, Physiology	
SU28.7	Describe the applied anatomy and physiology of stomach.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.10	Describe the applied anatomy of liver. Describe the Clinical features, Investigations and principles of management of Liver abscess, hydatid disease, Injuries and Tumors of the liver.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.11	Describe the applied anatomy of Spleen. Describe the clinical features, Investigations and principles of management of splenic injuries. Describe the Post-splenectomy sepsis- prophylaxis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestines	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.2	Describe the applied anatomy, clinical features, investigations and principles of management of Undescended testis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.3	Describe the applied anatomy, clinical features, investigations and principles of management of Epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.4	Describe the applied anatomy, clinical features, investigations and principles of management of Varicocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
Orthopaedics									
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	1	Human Anatomy	
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of supra condylar fracture of humerus	K	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur © Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	2	Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection, prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small Group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
OR12.1	Describe and discuss the Clinical features, Investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Physical Medicine & Rehabilitation									
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
Pediatrics									
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

PHYSIOLOGY (CODE: PY)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSIOLOGY									
Topic: General Physiology		Number of competencies: (09)			Number of procedures that require certification : (NIL)				
PY1.1	Describe the structure and functions of a mammalian cell	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.2	Describe and discuss the principles of homeostasis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.3	Describe intercellular communication	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY1.5	Describe and discuss transport mechanisms across cell membranes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.6	Describe the fluid compartments of the body, its ionic composition & measurements	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.7	Describe the concept of pH & Buffer systems in the body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.8	Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.9	Demonstrate the ability to describe and discuss the methods used to demonstrate the functions of the cells and its products, its communications and their applications in Clinical care and research.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Haematology		Number of competencies: (13)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.1	Describe the composition and functions of blood components	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.2	Discuss the origin, forms, variations and functions of plasma proteins	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.3	Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. Describe variants of haemoglobin	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.4	Describe RBC formation (erythropoiesis & its regulation) and its functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.5	Describe different types of anaemias & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	Biochemistry
PY2.6	Describe WBC formation (granulopoiesis) and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.7	Describe the formation of platelets, functions and variations.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.8	Describe the physiological basis of hemostasis and, anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/Viva voce		Pathology	
PY2.10	Define and classify different types of immunity. Describe the development of immunity and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written /Viva voce		Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written /Viva voce		Pathology	
Topic: Nerve and Muscle Physiology Number of competencies: (18) Number of procedures that require certification: (NIL)									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.2	Describe the types, functions & properties of nerve fibers	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.3	Describe the degeneration and regeneration in peripheral nerves	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology, Pharmacology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.8	Describe action potential and its properties in different muscle types (skeletal & smooth)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9	Describe the molecular basis of muscle contraction in skeletal and in smooth muscles	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10	Describe the mode of muscle contraction (isometric and isotonic)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY3.14	Perform Ergography	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15	Demonstrate effect of mild, moderate and severe exercise and record changes in cardiorespiratory parameters	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16	Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.17	Describe Strength-duration curve	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.18	Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments	S	KH	Y	Demonstration, Computer assisted learning methods	Practical / Viva voce			
Topic: Gastro-intestinal Physiology Number of competencies: (10) Number of procedures that require certification: (NIL)									
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.3	Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY4.5	Describe the source of GIT hormones, their regulation and functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.6	Describe the Gut-Brain Axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY4.10	Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment	S	SH	Y	DOAP session	Skill assessment/ Viva voce/OSCE			
Topic: Cardiovascular Physiology (CVS) Number of competencies: (16) Number of procedures that require certification: (03)									
PY5.1	Describe the functional anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.2	Describe the properties of cardiac muscle including its morphology, electrical, mechanical and metabolic functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.3	Discuss the events occurring during the cardiac cycle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.4	Describe generation, conduction of cardiac impulse	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY5.7	Describe and discuss haemodynamics of circulatory system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.8	Describe and discuss local and systemic cardiovascular regulatory mechanisms	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.9	Describe the factors affecting heart rate, regulation of cardiac output & blood pressure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY5.11	Describe the patho-physiology of shock, syncope and heart failure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.12	Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce	1 each x 3		
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce		General Medicine	
PY5.14	Observe cardiovascular autonomic function tests in a volunteer or simulated environment	S	SH	N	DOAP sessions	Skill assessment/ Viva voce			
PY5.15	Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/ Viva voce		General Medicine	

Topic: Respiratory Physiology

Number of competencies: (10)

Number of procedures that require certification: (01)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY6.1	Describe the functional anatomy of respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.2	Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities, alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, diffusion capacity of lungs	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.3	Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.4	Describe and discuss the physiology of high altitude and deep sea diving	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.5	Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.6	Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.7	Describe and discuss lung function tests & their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
PY6.9	Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1		
PY6.10	Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
Topic: Renal Physiology		Number of competencies: (09)			Number of procedures that require certification: (NIL)				
PY7.1	Describe structure and function of kidney	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.2	Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY7.3	Describe the mechanism of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.4	Describe & discuss the significance & implication of Renal clearance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5	Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.6	Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY7.9	Describe cystometry and discuss the normal cystometrogram	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Endocrine Physiology Number of competencies: (06) Number of procedures that require certification : (NIL)									
PY8.1	Describe the physiology of bone and calcium metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.2	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.3	Describe the physiology of Thymus & Pineal Gland	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY8.5	Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.6	Describe & differentiate the mechanism of action of steroid, protein and amine hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Reproductive Physiology Number of competencies: (12) Number of procedures that require certification: (NIL)									
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY9.2	Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.3	Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its association with psychiatric illness	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.4	Describe female reproductive system: (a) functions of ovary and its control; (b) menstrual cycle - hormonal, uterine and ovarian changes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.5	Describe and discuss the physiological effects of sex hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.7	Describe and discuss the effects of removal of gonads on physiological functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.9	Interpret a normal semen analysis report including (a) sperm count, (b) sperm morphology and (c) sperm motility, as per WHO guidelines and discuss the results	K	KH	Y	Lecture, Small group discussion	OSPE/Viva voce			
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
Topic: Neurophysiology									
				Number of competencies: (20)			Number of procedures that require certification: (09)		
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.10	Describe and discuss chemical transmission in the nervous system. (Outline the psychiatry element).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1 each (total 5)		Human Anatomy
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.14	Describe and discuss patho-physiology of altered smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, refractive errors, colour blindness, physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.20	Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each (total 4)	ENT, Ophthalmology	
Topic: Integrated Physiology Number of competencies: (14) Number of procedures that require certification: (NIL)									
PY11.1	Describe and discuss mechanism of temperature regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.2	Describe and discuss adaptation to altered temperature (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.3	Describe and discuss mechanism of fever, cold injuries and heat stroke	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.4	Describe and discuss cardio-respiratory and metabolic adjustments during exercise; physical training effects	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.5	Describe and discuss physiological consequences of sedentary lifestyle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/Viva voce		Pediatrics	
PY11.7	Describe and discuss physiology of aging; free radicals and antioxidants	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.8	Discuss & compare cardio-respiratory changes in exercise (isometric and isotonic) with that in the resting state and under different environmental conditions (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY11.9	Interpret growth charts	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.11	Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.12	Discuss the physiological effects of meditation	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.13	Obtain history and perform general examination in the volunteer / simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine, Anaesthesiology	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.
Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,
Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Human Anatomy

AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.7	Describe various types of synapse	K	KH	N	Lecture	Written			Physiology
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndromme	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN67.2	Classify muscle and describe the structure-function correlation of the same	K	KH	Y	Lecture, Practical	Written			Physiology
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	Lecture, Practical	Written			Physiology
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	Lecture, Practical	Written			Physiology
Biochemistry									
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussions	Written assessment and Viva voce			Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pathology									
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	

Pharmacology

PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, anti-manics, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics Drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Forensic Medicine & Toxicology									
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin.	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & Rh blood group of a person.	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Pathology, Physiology	
Anesthesiology									
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
Ophtalmology									
OP1.1	Describe the physiology of vision.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
General Medicine									
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis, natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussions	short note/ Viva voce		Pathology, Physiology	General Surgery
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Obstetrics & Gynaecology

OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis	K	K	Y	Lecture, seminars	Theory		Physiology	
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Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal systems in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	

Pediatrics

PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Physiology	
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE10.1	Define, describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of severe Acute Malnourishment and Moderate Acute Malnutrition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	P	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry Physiology Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE29.1	Discuss the etio-pathogenesis, Clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, Clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Physiology	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators	K	KH	Y	Lecture, Bed side clinic and Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU2.1	Describe Pathophysiology of shock. Types of shock. Principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU4.1	Elicit, document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and Discuss the methods of estimation and replacement the Fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group Discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	

Respiratory Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	

BIOCHEMISTRY (CODE: BI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BIOCHEMISTRY									
Topic: Basic Biochemistry		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussion	Written assessment/ Viva voce			Physiology
Topic: Enzyme		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
BI2.1	Explain fundamental concepts of enzyme, isoenzyme, alloenzyme, coenzyme & co-factors. Enumerate the main classes of IUBMB nomenclature.	K	KH	Y	Lecture, case discussion	Written assessment/ Viva voce			
BI2.2	Observe the estimation of SGOT & SGPT	K	K	Y	Demonstration	Viva voce			
BI2.3	Describe and explain the basic principles of enzyme activity	K	KH	Y	Lecture, case discussion	Written/ Viva voce			
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
Topic: Chemistry and Metabolism of Carbohydrates		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
BI3.1	Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI3.2	Describe the processes involved in digestion and assimilation of carbohydrates and storage.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.3	Describe and discuss the digestion and assimilation of carbohydrates from food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.4	Define and differentiate the pathways of carbohydrate metabolism, (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.6	Describe and discuss the concept of TCA cycle as a amphibolic pathway and its regulation.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Topic: Chemistry and Metabolism of Lipids		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Topic: Chemistry and Metabolism of Proteins

Number of competencies: (05)

Number of procedures that require certification: (NIL)

BI5.1	Describe and discuss structural organization of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI5.3	Describe the digestion and absorption of dietary proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Topic: Metabolism and homeostasis

Number of competencies: (15)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.2	Describe and discuss the metabolic processes in which nucleotides are involved.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.6	Describe the biochemical processes involved in generation of energy in cells.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Topic: Molecular biology Number of competencies: (07) Number of procedures that require certification: (NIL)									
BI7.1	Describe the structure and functions of DNA and RNA and outline the cell cycle.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.2	Describe the processes involved in replication & repair of DNA and the transcription & translation mechanisms.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of molecular technologies like recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI7.5	Describe the role of xenobiotics in disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.6	Describe the anti-oxidant defence systems in the body.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Nutrition		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Topic: Extracellular Matrix		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
BI9.1	List the functions and components of the extracellular matrix (ECM).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI9.2	Discuss the involvement of ECM components in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI9.3	Describe protein targeting & sorting along with its associated disorders.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Oncogenesis and immunity		Number of competencies: (05)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation. Also focus on p53 & apoptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Topic: Biochemical Laboratory Tests		Number of competencies: (24)			Number of procedures that require certification: (05)				
BI11.1	Describe commonly used laboratory apparatus and equipments, good safe laboratory practice and waste disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.2	Describe the preparation of buffers and estimation of pH.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.3	Describe the chemical components of normal urine.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.6	Describe the principles of colorimetry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.7	Demonstrate the estimation of serum creatinine and creatinine clearance	S	P	Y	Practical	Skills assessment	1		
BI11.8	Demonstrate estimation of serum proteins, albumin and A:G ratio	S	P	Y	Practical	Skills assessment	1		
BI11.9	Demonstrate the estimation of serum total cholesterol and HDL-cholesterol	S	P	Y	Practical	Skills assessment			
BI11.10	Demonstrate the estimation of triglycerides	S	P	Y	Practical	Skills assessment			
BI11.11	Demonstrate estimation of calcium and phosphorous	S	P	Y	Practical	Skills assessment			
BI11.12	Demonstrate the estimation of serum bilirubin	S	P	Y	Practical	Skills assessment			
BI11.13	Demonstrate the estimation of SGOT/ SGPT	S	P	Y	Practical	Skills assessment			
BI11.14	Demonstrate the estimation of alkaline phosphatase	S	P	Y	Practical	Skills assessment			
BI11.15	Describe & discuss the composition of CSF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.16	Observe use of commonly used equipments/techniques in biochemistry laboratory including: •pH meter •Paper chromatography of amino acid •Protein electrophoresis •TLC, PAGE •Electrolyte analysis by ISE •ABG analyzer •ELISA •Immunodiffusion •Autoanalyser •Quality control •DNA isolation from blood/ tissue	S	KH	Y	Demonstration	Skill assessment			
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI11.18	Discuss the principles of spectrophotometry.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.19	Outline the basic principles involved in the functioning of instruments commonly used in a biochemistry laboratory and their applications.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.20	Identify abnormal constituents in urine, interpret the findings and correlate these with pathological states.	S	SH	Y	DOAP sessions	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.21	Demonstrate estimation of glucose, creatinine, urea and total protein in serum.	S	SH	Y	DOAP sessions	Skill assessment	1		
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.
Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,
Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Physiology

PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Pathology

PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology, pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Dermatology, Venereology & Leprosy

DR17.1	Enumerate and identify the cutaneous findings in Vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Ophthalmology

OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
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General Medicine

IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Biochemistry	
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Pediatrics

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE10.1	Define Describe the etio-pathogenesis , Classify including WHO classification , clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE12.1	Discuss the (RDA) , dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bed side clinics, Small group discussion	Document in log book		Biochemistry	
PE12.4	Diagnose patients with Vitamin A deficiency, Classify and plan management	S	SH	N	Bed side clinics, Skill Station	Document in log book		Biochemistry	
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Biochemistry	
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, Diagnose, Classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis , management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA , dietary sources of Vitamin B and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of Deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bed side clinics, Skill lab	Document in log book		Biochemistry	
PE12.19	Discuss the RDA, dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.20	Describe the causes, clinical features, diagnosis and management of Deficiency of Vitamin C (scurvy)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.21	Identify the clinical features Vitamin C deficiency	S	SH	N	Bed side clinics, Skill lab	Document in log book		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	SH	Y	Bed side clinic, Small group discussion	Skill Assessment		Pathology, Biochemistry	
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, clinical features, diagnosis and management of Deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bed side clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and its role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA , dietary sources of Magnesium and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regards to Classification of vaccines, Strain used, Dose, route, schedule, Risks benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE29.16	Discuss the Indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill assessment	3	Biochemistry	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Biochemistry	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient.	K	KH	Y	Lecture, Small group discussion.	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications.	K	KH	Y	Lecture, Small group discussion, Bedside clinic discussion	Written/ Viva voce		Biochemistry	

PHARMACOLOGY (CODE: PH)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHARMACOLOGY									
KNOWLEDGE: Topic: Pharmacology		Number of competencies: (64)			Number of procedures that require certification : (NIL)				
PH1.1	Define and describe the principles of pharmacology and pharmacotherapeutics	K	K	Y	Lecture	Written/ Viva voce			
PH1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	K	KH	Y	Lecture	Written/ Viva voce			
PH1.3	Enumerate and identify drug formulations and drug delivery systems	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.4	Describe absorption, distribution, metabolism & excretion of drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.5	Describe general principles of mechanism of drug action	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.6	Describe principles of Pharmacovigilance & ADR reporting systems	K	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.7	Define, identify and describe the management of adverse drug reactions (ADR)	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.8	Identify and describe the management of drug interactions	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.9	Describe nomenclature of drugs i.e. generic, branded drugs	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.11	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction.	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	
PH1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.14	Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PH1.24	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics- vasopressin and analogues	K	KH	Y	Lecture	Written/ Viva voce			
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin-angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	K	KH	N	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.37	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones	K	KH	Y	Lecture	Written/ Viva voce			
PH1.38	Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.42	Describe general principles of chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology
PH1.44	Describe the first line antitubercular dugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the dugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
PH1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs	K	KH	Y	Lecture	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.50	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	K	KH	Y	Lecture	Written/ Viva voce			
PH1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents	K	KH/	Y	Lecture	Written/ Viva voce			
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.53	Describe heavy metal poisoning and chelating agents	K	KH	N	Lecture	Written/ Viva voce			
PH1.54	Describe vaccines and their uses	K	KH	Y	Lecture	Written/ Viva voce			
PH1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filariasis, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
PH1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines	K	KH	Y	Lecture	Written/ Viva voce			
PH1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics	K	KH	N	Lecture	Written/ Viva voce			
PH1.61	Describe and discuss dietary supplements and nutraceuticals	K	KH	N	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/ Viva voce			Forensic Medicine

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.
Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,
Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Physiology									
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Anaesthesiology, Pharmacology	

Microbiology

MI1.6	Describe the mechanisms of drug resistance, methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy.	K	K	Y	Lecture , Small group discussion	Written Viva			Pharmacology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid Peptic Disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology

Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.8	Describe the mode of action & application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology

Forensic Medicine & Toxicology

FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.25	Clinical research & Ethics: Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics & Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce /OSCE		Pharmacology	
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce /OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Caustics Inorganic – sulphuric, nitric, and hydrochloric acid Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids.	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lectures, Small group discussion Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology

Dermatology, Venereology & Leprosy

DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	Pharmacology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical). agents Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on National Guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR15.3	Enumerate the indications and describe the pharmacology indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Anesthesiology									
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic session	Skill station		Pharmacology	
AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non-depolarising muscle relaxants, anticholinesterases	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine

Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

General Medicine

IM1.24	Describe and discuss the pharmacology of drugs including indications & contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology Pharmacology	
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	log book documentation of completion		Pharmacology	
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb - IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Small group, Lecture	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and National Programs	S	SH	Y	Skill assessment	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group	Skill Assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.17	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	Orthopedics
IM7.22	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.23	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.24	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bed side clinic, Small group discussion	Skill assessment/ written		Pharmacology	
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM9.14	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pharmacology	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and General Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pharmacology	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti-snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM20.8	Describe the diagnosis, initial approach, stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis, initial approach, stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico-legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico-legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico-legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	

Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE13.6	Discuss the National Anaemia Control Program and its recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology, Community Medicine	
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organo phosphorous poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	General Medicine
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine

General Surgery

SU13.2	Discuss the Principles of immunosuppressive therapy. Enumerate indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
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Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lectures, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lectures, Small group discussion	Written / Viva voce		Pharmacology	General Medicine

Respiratory Medicine

CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.14	Describe and discuss the pharmacology of various antituberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Orthopaedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group Discussion, Video assisted lecture	Written/ Viva voce/ OSCE	–	Pathology, Microbiology	General surgery

PATHOLOGY (CODE: PA)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PATHOLOGY									
Topic: Introduction to Pathology		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	Departmental orientation	Written/ Viva voce			
PA1.2	Enumerate common definitions and terms used in Pathology	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA1.3	Describe the history and evolution of Pathology	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cell Injury and Adaptation		Number of competencies: (08)			Number of procedures that require certification: (NIL)				
PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.5	Describe and discuss pathologic calcifications, gangrene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Amyloidosis Number of competencies: (02) Number of procedures that require certification: (NIL)									
PA3.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA3.2	Identify and describe amyloidosis in a pathology specimen	S	SH	N	DOAP session	Skill assessment			
Topic: Inflammation Number of competencies:(04) Number of procedures that require certification: (NIL)									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.3	Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Healing and repair Number of competencies: (01) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hemodynamic disorders Number of competencies: (07) Number of procedures that require certification :(NIL)									
PA6.1	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA6.2	Define and describe hyperemia, congestion, hemorrhage	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.4	Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.5	Define and describe embolism and its causes and common types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.6	Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.7	Identify and describe the gross and microscopic features of infarction in a pathologic specimen	S	SH	Y	DOAP session	Skill Assessment			
Topic: Neoplastic disorders Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and spread. Differentiate between benign from malignant neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.2	Describe the molecular basis of cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA7.3	Enumerate carcinogens and describe the process of carcinogenesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.4	Describe the effects of tumor on the host including paraneoplastic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.5	Describe immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Topic: Basic diagnostic cytology Number of competencies:(03) Number of procedures that require certification:(NIL)									
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique & stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen	S	KH	Y	DOAP session	Skill assessment			
Topic: Immunopathology and AIDS Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	S	SH	Y	DOAP session	Skill assessment			
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Hemolytic anemia									
			Number of competencies: (07)			Number of procedures that require certification: (01)			
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	P	Y	DOAP session	Skill assessment	1		
PA16.7	Discribe the correct technique to perform a cross match	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Aplastic anemia									
			Number of competencies: (02)			Number of procedures that require certification:(NIL)			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Leukocyte disorders		Number of competencies: (02)			Number of procedures that require certification:(NIL)				
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA 18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lymph node and spleen		Number of competencies: (07)			Number of procedures that require certification:(NIL)				
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment			
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen of an enlarged spleen	S	SH	Y	DOAP session	Skill assessment			
Topic: Plasma cell disorders Number of competencies: (01) Number of procedures that require certification: (NIL)									
PA20.1	Describe the features of plasma cell myeloma	S	SH	Y	DOAP session	Skill assessment			
Topic: Hemorrhagic disorders Number of competencies: (05) Number of procedures that require certification:(NIL)									
PA21.1	Describe normal hemostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and haemophilia's	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Blood banking and transfusion Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA22.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.7	Enumerate the indications and describe the principles and procedure of autologous transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Clinical Pathology		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	S	SH	Y	DOAP session	Skill Assessment			
PA23.2	Describe abnormal findings in body fluids in various disease states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests, renal function tests or liver function tests	S	SH	Y	DOAP session	Skill Assessment			
Topic: Gastrointestinal tract		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hepatobiliary system Number of competencies: (06) Number of procedures that require certification: (01)									
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Respiratory system		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Topic: Cardiovascular system		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Urinary Tract		Number of competencies: (16)			Number of procedures that require certification: (NIL)				
PA28.1	Describe the normal histology of the kidney	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.2	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Male Genital Tract									
			Number of competencies: (05)		Number of procedures that require certification: (NIL)				
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Female Genital Tract Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Breast Number of competencies: (04) Number of procedures that require certification: (NIL)									
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill Assessment		General Surgery	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
Topic: Endocrine system Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Topic: Bone and soft tissue Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Skin		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	
Topic: Central Nervous System		Number of competencies:(03)			Number of procedures that require certification: (01)				
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology

Topic: Eye

Number of competencies: (01)

Number of procedures that require certification:(NIL)

PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
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Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, S - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Human Anatomy

AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN71.1	Identify bone under the microscope, Classify various types and describe the structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same describe various types and structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Physiology									
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.5	Describe different types of anemia & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	Biochemistry
PY2.8	Describe the physiological basis of hemostasis and anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/ Viva voce		Pathology	
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/ viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written/ Viva voce		Pathology	
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written/ Viva voce		Pathology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion /DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/obesity	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: diabetes mellitus, dyslipidemia, myocardial infarction, renal failure, gout, proteinuria, nephrotic syndrome, edema, jaundice, liver diseases, pancreatitis, disorders of acid-base balance, thyroid disorders	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
Microbiology									
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology
MI2.7	Describe the epidemiology, the etio-pathogenesis, evolution, complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.6	Describe the etio-pathogenesis of Acid Peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
Community Medicine									
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
Forensic Medicine & Toxicology									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical death and Brainstem death	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.5	Discuss moment of death, modes of death-coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Obstetrics & Gynaecology, Pathology	
FM6.1	Describe different types of specimens and tissues to be collected both in the living and dead: body fluids (blood, urine, semen, faeces, saliva), skin, nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
Dermatology, Venereology & Leprosy									
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment	1	General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
Anesthesiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
ENT									
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	
Ophthalmology									
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous / cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe, discuss and differentiate the processes involved in R vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non-modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	written		Pathology, Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	skills lab	log book documentation/ DOAP session		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	viva voce/ written		Pathology, Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bed side clinic, DOAP session, Small group discussion	written/ Skill assessment		Pathology, Microbiology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.16	Enumerate the indications for and interpret the results of: CBC, anti CCP (Anti-cyclic citrullinated peptide), RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bed side clinic, small group	Skill assessment/ written		Pathology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.6	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment/ written		Pathology	
IM9.7	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.8	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.10	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.11	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.12	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, small group	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.16	Enumerate the indications for and interpret the results of: renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors, economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamo-pituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pathology	
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology, Physiology	General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM15.11	Develop document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel, sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic skills lab	Skill assessment		Microbiology, Pathology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM18.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
Obstetrics & Gynaecology									
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management	K	KH	Y	Lecture, Small group discussion			Pathology	
Pediatrics									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE12.7	Describe the causes, clinical features, diagnosis and management of deficiency /excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	p	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry, Physiology Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	P	Y	Bed side clinic, Small group discussion	Skill Assessment	5	Pathology, Biochemistry	
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute post streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE21.5	Enumerate the etio-pathogenesis clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in children and its causes including celiac disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
General Surgery									
SU2.1	Describe pathophysiology of shock, types of shock, principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU3.1	Describe the indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce.		Pathology	
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
Respiratory Medicine									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR4.1	Describe and discuss the clinical features, investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
Radiotherapy									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

MICROBIOLOGY (CODE: MI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY									
Topic: General Microbiology and Immunity		Number of competencies: (11)			Number of procedures that require certification : (01)				
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	S	P	Y	DOAP session	Skill assessment	5		
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussion, Case discussion	Written/Viva voce/ OSPE		General Surgery	
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.11	Describe the immunological mechanisms of transplantation and tumor immunity	K	KH	Y	Lecture	Written/ Viva voce			
Topic: CVS and Blood Number of competencies: (7) Number of procedures that require certification : (NIL)									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
Topic: Gastrointestinal and hepatobiliary system Number of competencies: (8) Number of procedures that require certification : (NIL)									
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
Topic: Musculoskeletal system skin and soft tissue infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y	Lecture	Written/ Viva voce		Orthopaedics	
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
Topic: Central Nervous System infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Pediatrics	
Topic: Respiratory tract infections Number of competencies: (3) Number of procedures that require certification : (02)									
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing infectious diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases	S	SH	Y	DOAP session	Skill assessment			
MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	DOAP session	Skill assessment			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	A	KH	Y	Lecture, Small group discussion	Viva voce			
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.14	Demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y	DOAP session	Skill assessment		AETCOM	
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseases	K/S	SH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE			
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written/ Viva voce			Community Medicine
	*causative agents of Infectious diseases are inclusive of bacterial, viral, parasites and fungal agents causing various clinical conditions.								
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Biochemistry									
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA7.5	Describe the immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive Airway Disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology, microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Pharmacology									
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases/ jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Microbiology	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Dermatology, Venereology & Leprosy									
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology
DR8.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Dentistry									
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
General Medicine									
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiology of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	KH	Y	Lecture , Small group discussion	short note/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.19	Discuss, describe and enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and co-morbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book documentation/ Skill assessment		Microbiology	
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Pathology, Microbiology	
IM5.17	Enumerate the indications precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	written Small group discussion	Written/ Viva voce		Microbiology	
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret a gram stain of the sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.17	Describe and discuss the principles of HAART, the classes of antiretroviral used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Describe and discuss the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non-infectious causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM6.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM16.10	Identify Vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Microbiology	
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lectures, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic disease (eg. Leptospirosis, Rabies) and non febrile infectious disease (eg. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Describe and discuss the common causes pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Pediatrics									
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.1	Enumerate the etio-pathogenesis clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.12	Perform and interpret stool examination including Hanging Drop	S	P	N	Bed side clinics, Skills lab	log book	2	Microbiology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group discussion activity	Written/ Viva voce		Microbiology	
PE30.1	Discuss the etio-pathogenesis, clinical features, complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.21	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism eg Gastric Aspirate, Sputum, CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and Discuss the limitation of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	
General Surgery									
SU6.1	Define and describe the aetiology and pathogenesis of surgical infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU14.1	Describe aseptic techniques, sterilization and disinfection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU15.1	Describe Classification of hospital waste and appropriate methods of disposal	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	
Respiratory Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS).	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.3	Discuss and describe the impact of confection with HIV and other co-morbid conditions like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.7	Perform and interpret a PPD (Mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origins, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	

FORENSIC MEDICINE INCLUDING TOXICOLOGY (CODE: FM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FORENSIC MEDICINE & TOXICOLOGY									
Topic: General Information		Number of competencies: (11)			Number of procedures that require certification: (NIL)				
FM1.1	Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.2	Describe history of Forensic Medicine	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.3	Describe legal procedures including Criminal Procedure Code, Indian Penal Code, Indian Evidence Act, Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.4	Describe Courts in India and their powers: Supreme Court, High Court, Sessions court, Magistrate's Court, Labour Court, Family Court, Executive Magistrate Court and Juvenile Justice Board	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.5	Describe Court procedures including issue of Summons, conduct money, types of witnesses, recording of evidence oath, affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence & conduct of doctor in witness box	K	KH	N	Lecture, Small Group Discussion, Moot Court	Written/ Viva voce			
FM1.6	Describe Offenses in Court including Perjury; Court strictures vis-a-vis Medical Officer	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.7	Describe Dying Declaration & Dying Deposition	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.8	Describe the latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc.	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially - maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. - maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. -documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM1.10	Select appropriate cause of death in a particular scenario by referring ICD 10 code	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.11	Write a correct cause of death certificate as per ICD 10 document	S	SH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
Topic: Forensic Pathology Number of competencies: (35) Number of procedures that require certification : (NIL)									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Pathology	
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.5	Discuss moment of death, modes of death - coma, asphyxia and syncope	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Psychiatry, Pathology	
FM2.6	Discuss presumption of death and survivorship	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM2.7	Describe and discuss suspended animation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.8	Describe and discuss postmortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.9	Describe putrefaction, mummification, adipocere and maceration	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.10	Discuss estimation of time since death	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM2.14	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artefacts	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM 2.15	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per National Human Rights Commission Guidelines	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.16	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ OSPE			
FM2.17	Describe and discuss exhumation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.18	Crime Scene Investigation:- Describe and discuss the objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.20	Mechanical asphyxia: Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in asphyxial deaths	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.21	Mechanical asphyxia: Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material	K	KH	Y	Lecture/Small group discussion, Autopsy DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.22	Mechanical asphyxia: Describe and discuss patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.23	Describe and discuss types, patho-physiology, clinical features, post-mortem findings and medico-legal aspects of drowning, diatom test and, gettler test.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.24	Thermal deaths: Describe the clinical features, post-mortem finding and medicolegal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce			
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightning, electrocution and radiations	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM2.26	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden Infants Death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/Viva voce / OSCE		Pediatrics, Human Anatomy	
FM2.29	Demonstrate respect to the directions of courts, while appearing as witness for recording of evidence under oath or affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence	A and C	SH	Y	Lecture, Small group discussion, Moot Court, Court visits, Role Play	Role Play during internal assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.30	Have knowledge/awareness of latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc	A	K	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.31	Demonstrate ability to work in a team for conduction of medico-legal autopsies in cases of death following alleged negligence medical dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation	A	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.32	Demonstrate ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A and C	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Community Medicine	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Medicine, AETCOM	
FM2.35	Demonstrate professionalism while conducting autopsy in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	KH/SH		Lecture, small group discussions, DOAP session	Written/ Viva voce/ OSPE		AETCOM	
Topic: Clinical Forensic Medicine		Number of competencies:(33)			Number of procedures that require certification:(NIL)				
FM3.1	IDENTIFICATION Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico-legal aspects of age	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/Viva voce/ skill assessment		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.2	IDENTIFICATION Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy and superimposition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects	K	KH	Y	Lecture, Small group discussion Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: Define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.5	Mechanical injuries and wounds: Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM3.6	Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery	
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE/OSPE		Obstetrics & Gynaecology	
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC&PNDT) - Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the national Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion. MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Pathology	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM3.30	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequelae, management of torture survivors	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.31	Torture and Human rights Describe and discuss guidelines and Protocols of National Human Rights Commission regarding torture	K	K/KH	N	Lecture/Small group discussion	Written/ Viva voce			
FM3.32	Demonstrate the professionalism while preparing reports in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	SH	Y	Lecture, Small group discussion	OSPE/Viva voce		AETCOM	
FM3.33	Should be able to demonstrate the professionalism while dealing with victims of torture and human right violations, sexual assaults- psychological consultation, rehabilitation	A and C	K/KH/S H	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Medical Jurisprudence (Medical Law and ethics)		Number of competencies: (30)			Number of procedures that require certification : (NIL)				
FM4.1	Describe Medical Ethics and explain its historical emergence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.3	Describe the functions and role of Medical Council of India and State Medical Councils	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.4	Describe the Indian Medical Register	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.5	Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.7	Describe and discuss the ethics related to HIV patients	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.8	Describe the Consumer Protection Act-1986 (Medical Indemnity Insurance, Civil Litigations and Compensations), Workman's Compensation Act & ESI Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.10	Describe communication between doctors, public and media	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.13	Describe social aspects of Medico-legal cases with respect to victims of assault, rape, attempted suicide, homicide, domestic violence, dowry- related cases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management – Human behaviour, communication skills, conflict resolution techniques	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.16	Describe and discuss Bioethics	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.20	Describe therapeutic privilege, Malingering, Therapeutic Misadventure, Professional Secrecy, Human Experimentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.21	Describe Products liability and Medical Indemnity Insurance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor- patient relationship: professional secrecy and privileged communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time	A and C	SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.29	Demonstrate ability to communicate appropriately with media, public and doctors	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.30	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
Topic: Forensic Psychiatry		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe Civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Topic: Forensic Laboratory investigation in medical legal practice		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
FM6.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM6.2	Describe the methods of sample collection, preservation, labelling, dispatch, and interpretation of reports	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM6.3	Demonstrate professionalism while sending the biological or trace evidences to Forensic Science laboratory, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A and C	KH/SH	Y	Lecture, Small group discussions, DOAP sessions	Viva voce / OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Emerging technologies in Forensic Medicine		Number of competencies: (01)			Number of procedures that require certification:(NIL)				
FM7.1	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, - Digital autopsy, - Virtual Autopsy, - Imaging technologies	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology: General Toxicology		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics, and Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and despatch of relevant samples for laboratory analysis.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM8.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology : Chemical Toxicology Number of competencies: (06) Number of procedures that require certification : (NIL)									
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids; Organic-Carboic Acid (phenol), Oxalic and acetylsalicylic acids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Pharmaceutical Toxicology		Number of competencies: (01)			Number of procedures that require certification : (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepins phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Biotoxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Sociomedical Toxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Environmental Toxicology Number of competencies: (02) Number of procedures that require certification : (NIL)									
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
FM13.2	Describe medico-legal aspects of poisoning in Workman's Compensation Act	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Skills in Forensic Medicine & Toxicology									
				Number of competencies: (22)			Number of procedures that require certification: (NIL)		
FM14.1	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/casualty), Small group discussion	Log book/ Skill station/ Viva voce / OSCE			
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small Group discussion	Log book/ Skill station/ Viva voce / OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination	S	SH	Y	Bedside clinic, Small Group discussion, DOAP session	Skill lab/ Viva voce		General Medicine	
FM14.4	Conduct and prepare report of estimation of age of a person for medico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environment	S	KH	Y	Small group discussion, Demonstration	Log book/ Skill station/ Viva voce / OSCE			
FM14.5	Conduct & prepare post-mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH	Y	Small group discussion, Autopsy, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.6	Demonstrate and interpret medico-legal aspects from examination of hair (human & animal) fibre, semen & other biological fluids	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/ Viva voce / OSCE			
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.9	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.10	Demonstrate ability to identify & prepare medicolegal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.11	To identify & describe weapons of medicolegal importance which are commonly used e.g. lathi, knife, kripa, axe, gandasa, gupta, farsha, dagger, bhalla, razor & stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepare injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.12	Describe the contents and structure of bullet and cartridges used & to provide medico-legal interpretation from these	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce			
FM14.13	To estimate the age of foetus by post-mortem examination	S	KH	Y	Small group discussion, DOAP session	Theory/ Clinical assessment/ Viva voce			
FM14.14	To examine & prepare report of an alleged accused in rape/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.15	To examine & prepare medico-legal report of a victim of sexual offence/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.16	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	KH	Y	Small group discussion, Bed side clinic, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.17	To identify & draw medico-legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticides compounds, marking nut, oleander, Nux vomica, abrus seeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	Small group discussion, DOAP session	Log book/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.18	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.19	To identify & prepare medico-legal inference from histo-pathological slides of Myocardial Infarction, pneumonitis, tuberculosis, brain infarct, liver cirrhosis, brain haemorrhage, bone fracture, Pulmonary oedema, brain oedema, soot particles, diatoms & wound healing	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce			
FM14.20	To record and certify dying declaration in a simulated/ supervised environment	S	KH	Y	Small group discussion, Role Play, Bed side clinic DOAP session	Log book/ Skill station/ Viva voce /OSCE			
FM14.21	To collect, preserve, seal and dispatch exhibits for DNA-Finger printing using various formats of different laboratories.	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/Viva voce			
FM14.22	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	Small group discussion, Lecture, DOAP session, role play, Court Visits	Log book/ Viva voce/OSCE			
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Human Anatomy									
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/Practicals		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pharmacology									
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Forensic Medicine
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/Viva voce			Forensic Medicine
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Psychiatry									
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine AETCOM	
General Medicine									
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Obstetrics & Gynaecology									
OG1.3	Define and Discuss still birth and abortion	K	KH	Y	Lecture, Small group discussions	Short notes		Forensic Medicine	
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of medical termination of pregnancy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo medical termination of pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
General Surgery									
SU8.1	Describe the principles of Ethics as it pertains to surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	

List of contributing subject Experts

1. Human Anatomy

- Dr. Praveen R Singh, Professor & Head, Department of Anatomy, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Nachiket Shankar, Associate Professor, Department of Anatomy, St. John's Medical College & Hospital, Bangalore

2. Physiology

- Dr. Mario Vaz, Professor, Department of Physiology, St. John's Medical College & Hospital, Bangalore
- Dr. Jayashree Sengupta, Former Professor & Head, Department of Physiology, All India Institute of Medical Sciences, New Delhi.
- Dr Hasmukh D Shah, Professor & Head, Department of Physiology, Pramukhswami Medical College, Karamsad, Gujarat

3. Biochemistry

- Dr. Nibhriti Das, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi
- Dr. S. P. Singh, Professor, Department of Biochemistry, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh
- Dr. Hitesh N Shah, Professor & Head, Department of Biochemistry, Pramukhswami Medical College, Karamsad, Gujarat

4. Pharmacology

- Dr. S. K. Maulik, Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi
- Dr. Vandana Roy, Professor, Department of Pharmacology, Maulana Azad Medical College, New Delhi

5. Pathology

- Dr. S. Datta Gupta, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi
- Dr. Uma Chaturvedi, Professor, C-1303, Freedom Park Life, Sector- 57, Gurugram

6. Microbiology

- Dr. S. Geetalakshmi, Dean, Professor, Department of Microbiology, Stanley Medical College, Chennai, Tamil Nadu.
- Dr. Padma Srikanth, Professor, Department of Microbiology, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suman Singh, Professor, Department of Microbiology, Pramukhswami Medical College, Karamsad, Gujarat

7. Forensic Medicine & Toxicology

- Dr. Sanjeev Lalwani, Professor & Registrar (Academics), Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. T. D. Dogra, Former Director & Former Head, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi; currently, Vice Chancellor, SGT University, Gurugram
- Dr. S.D. Nanandkar, Professor & Head, Department of Forensic Medicine, Grant Government Medical College & Sir J.J. Group of Hospitals, Mumbai
- Dr. Indrajit L. Khandekar, In-charge CFMU and Associate Professor, Department of Forensic Medicine & Toxicology, MGIMS and Kasturba Hospital, Sewagram, Wardha.
- Dr. S. B. Punpale, Professor & Head, Department of Forensic Medicine, B. J. Medical College, Pune, Maharashtra

8. Community Medicine

- Dr. B. S. Garg, Professor & Head, Department of Community Medicine, Mahatama Gandhi Institute of Medical Sciences, Wardha, Sewagram, Maharashtra
- Dr. Umesh Kapil, Professor, Department of Community Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. Sanjay Zodpey, Director, Public Health Foundation of India, Isid Campus, 4 Institutional Area, Vasant Kunj, New Delhi
- Dr. Saudan Singh, Professor, Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. Dinesh Kumar, Professor, Department of Community Medicine, Pramukhswami Medical College, Karamsad, Gujarat

9. General Medicine & Respiratory Medicine

- Dr. Krishna G. Seshadri, Visiting Professor, Endocrinology & Metabolism, Balaji Vidyapeeth, Puducherry
- Dr. M. K. Bhatnagar, Director Professor, Department of General Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Aparna Agarwal, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Anil Gurtoo, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi

10. Pediatrics

- Dr. Harish Chellani, Professor of Pediatrics, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. A. K. Dutta, Former Head, Kalawati Saran Children's Hospital, New Delhi
- Dr. S. Aneja, Director Professor & Head, Department of Pediatrics, Kalawati Saran Children's Hospital, New Delhi

11. Psychiatry

- Dr. Rakesh Kumar Chadda, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi
- Dr. N. M. Patil, Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi
- Dr. Rajesh Rastogi, Consultant & Head Department of Psychiatry, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.
- Dr. Jagdish R Varma, Associate Professor, Department of Psychiatry, Pramukhswami Medical College, Karamsad, Gujarat

12. Dermatology, Venereology & Leprosy

- Dr. R. K. Gautam, Professor, Department of Dermatology, Venereology & Leprosy, Dr. Ram Manohar Lohia Hospital, New Delhi.
- Dr. Sujay Khandpur, Professor, Department of Dermatology, Venereology & Leprosy, All India Institute of Medical Sciences, New Delhi
- Dr. S. Murugan, Associate Professor of Dermatology, Sri Ramachandra Medical College & Research Institute, Chennai

13. Physical Medicine and Rehabilitation

- Dr. Sanjay Wadhwa, Professor, Department of Physical Medicine & Rehabilitation, All India Institute of Medical Sciences, New Delhi
- Dr. George Tharion, Head, Department of Physical Medicine & Rehabilitation, Christian Medical College, Vellore, Tamil Nadu
- Dr. Jagdish Menon, Professor & Head, Department of Orthopaedics and Dept. of Physical & Rehabilitative Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

14. General Surgery

- Dr. N Ananthkrishnan, 2A Vairam Enclave, Siddhananda Nagar, Pondicherry -605005.

- Dr. P. V. Chalam, Former Professor, Department of Surgery, Gandhi Medical College, Secunderabad, Telengana.
- Dr. Dinesh Bhatnagar, Professor, Department of General Surgery, North Delhi Municipal Corporation Medical College, Hindu Rao Hospital, Malka Ganj, Delhi

15. Ophthalmology

- Dr. Smita Singh, Professor, Department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Wardha

16. Oto-rhino-laryngology

- Dr. Achal Gulati, Director Professor, Department of ENT, Maulana Azad Medical College, New Delhi
- Dr. Ravi Kumar, Professor & Head, Department of ENT, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suma Mathew, Professor, Department of ENT, Christian Medical College, Vellore, Tamil Nadu

17. Obstetrics and Gynaecology

- Dr. Neerja Bhatla, Professor, Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi
- Dr. Annie Regi, Professor & Head, Department of Obstetrics & Gynecology, Christian Medical College, Vellore, Tamil Nadu
- Dr. Usha Vishwanath, Professor, Department of Obstetrics & Gynecology, Sri Ramachandra Medical College & Research Institute, Chennai

18. Orthopaedics

- Dr. P.V. Vijayaraghavan, Vice Chancellor & Professor of Orthopedics, Sri Ramachandra Medical College & Research Institute, Chennai

- Dr. Raj Bahadur, Professor & Head, Department of Orthopaedics, Postgraduate Institute of Medical Sciences, Chandigarh
- Dr. SC. Goel, Professor, Department of Orthopaedics, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

19. Anaesthesiology

- Dr. Baljit Singh, Director Professor of Anaesthesia, G. B. Pant Hospital, Delhi
- Dr. Ramesh Keshav, Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi
- Dr. Mridula Pawar, Consultant & Head, Department of Anaesthesia, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi

20. Radio- Diagnosis

- Dr. Kishor Taori (late), Professor & Head, Department of Radiodiagnosis, Government Medical College, Nagpur

21. Radiotherapy

- Dr. P. K. Jhulka, Dean & Professor of Radiotherapy, All India Institute of Medical Sciences, New Delhi.
- Dr. Shyam Shrivastava, Head, Department of Radiation, Tata Memorial Hospital, Mumbai

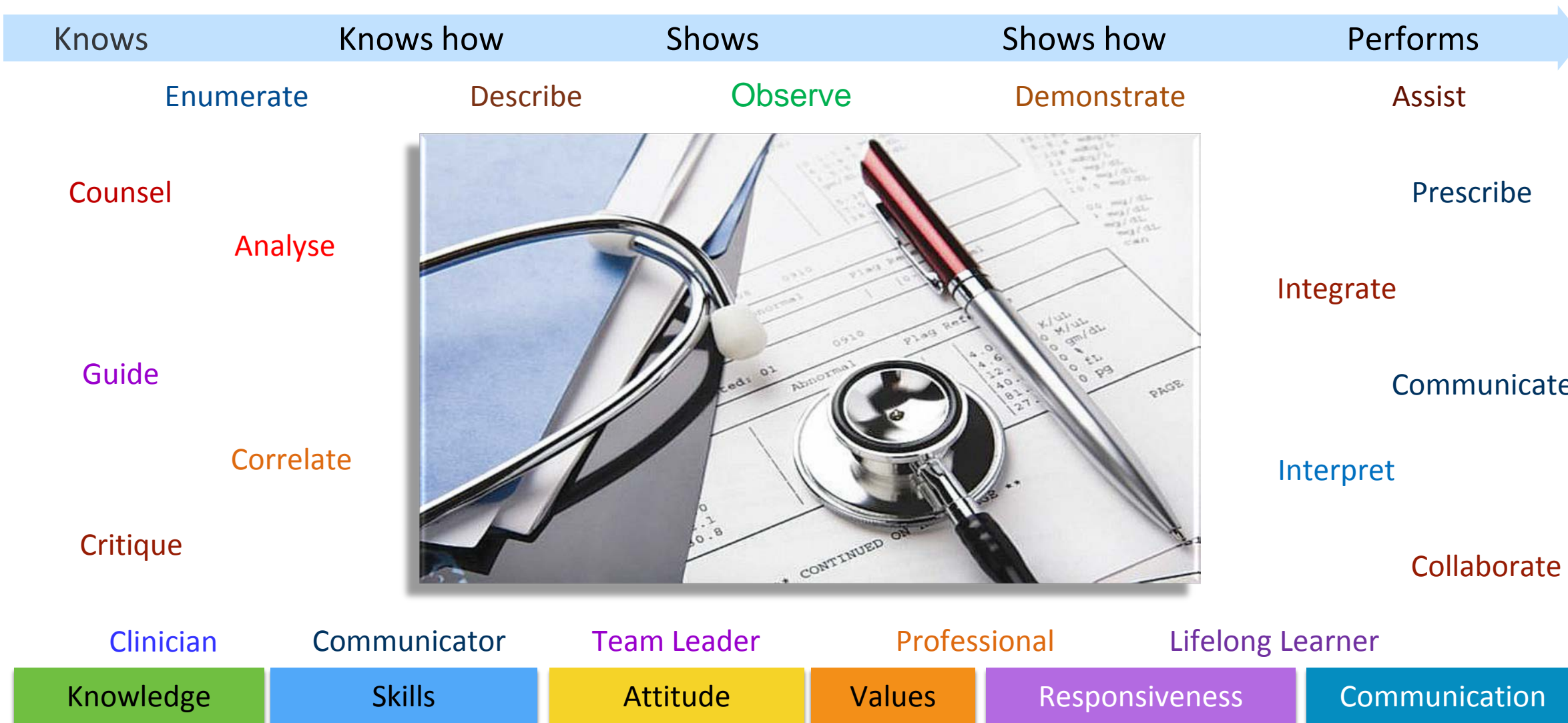
22. Dentistry

- Dr. Sridevi Padmanabhan, Professor, Department of Orthodontics, Faculty of Dental Sciences, Sri Ramchandra Medical College & Research Institute, Chennai



MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE**

2018



**Medical Council of India
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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

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Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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The Competency based Undergraduate Curriculum for MBBS students prepared by subject experts was scrutinized by members of the Reconciliation Board and Academic Cell. The contents, embodied in this document, have received Copyright from the Register of Copyrights, Copyright Office, Government of India with Registration Number L-63913/2016.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to 'perform' these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a "living document" that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2.3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary									
Name of Topic: General Physiology									
Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM15.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Description of competency

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
---------	---	-----	----	---

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture → small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately	
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase I Phase II student must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

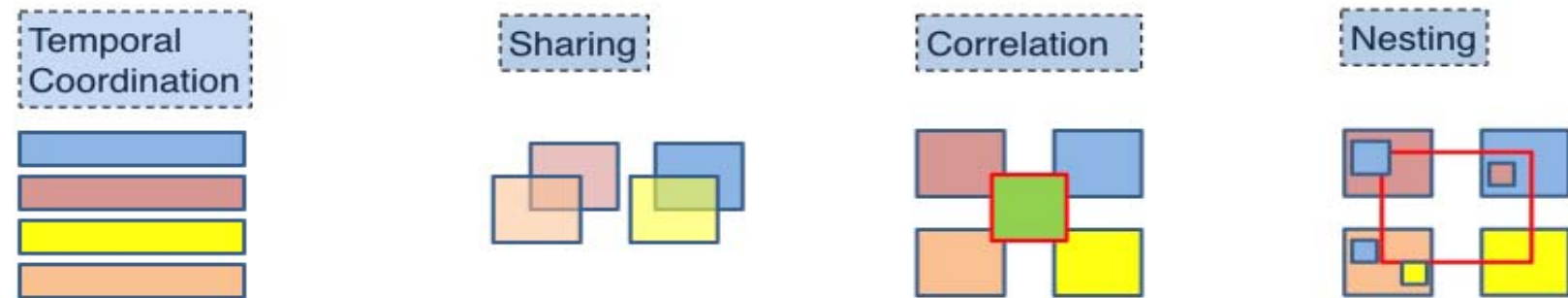


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

1. **Goal:** A projected state of affairs that a person or system plans to achieve.

In other words: Where do you want to go? or What do you want to become?

2. **Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.

In other words: What should you have? or What should have changed?

3. **Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.

In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word 'perform' or 'do' is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume II

Competency based Undergraduate Curriculum in Medicine and Allied subjects

COMMUNITY MEDICINE (CODE: CM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
COMMUNITY MEDICINE									
Topic: Concept of Health and Disease		Number of competencies: (10)			Number of procedures that require certification:(NIL)				
CM1.1	Define and describe the concept of Public Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.2	Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.3	Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.4	Describe and discuss the natural history of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.5	Describe the application of interventions at various levels of prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.6	Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.7	Enumerate and describe health indicators	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.8	Describe the Demographic profile of India and discuss its impact on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.9	Demonstrate the role of effective Communication skills in health in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	
CM1.10	Demonstrate the important aspects of the doctor patient relationship in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Relationship of social and behavioural to health and disease Number of competencies: (5) Number of procedures that require certification: (NIL)									
CM2.1	Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.2	Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.3	Describe and demonstrate in a simulated environment the assessment of barriers to good health and health seeking behavior	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.4	Describe social psychology, community behaviour and community relationship and their impact on health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM2.5	Describe poverty and social security measures and its relationship to health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: Environmental Health Problems Number of competencies: (8) Number of procedures that require certification: (NIL)									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, ENT	
CM3.2	Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce			
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.4	Describe the concept of solid waste, human excreta and sewage disposal	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.5	Describe the standards of housing and the effect of housing on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment		Microbiology	
CM3.8	Describe the mode of action, application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
Topic: Principles of health promotion and education		Number of competencies: (3)			Number of procedures that require certification: (NIL)				
CM4.1	Describe various methods of health education with their advantages and limitations	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.2	Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.3	Demonstrate and describe the steps in evaluation of health promotion and education program	S	SH	Y	Small group session, DOAP session	Written / Viva voce/ Skill assessment			
Topic: Nutrition		Number of competencies: (08)			Number of procedures that require certification: (NIL)				
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
Topic: Basic statistics and its applications Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.4	Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
Topic: Epidemiology Number of competencies: (09) Number of procedures that require certification: (NIL)									
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.9	Describe and demonstrate the application of computers in epidemiology	S	KH	Y	Small group discussion, DOAP sessions	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Epidemiology of communicable and non- communicable diseases		Number of competencies:(7)			Number of procedures that require certification:(NIL)				
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.6	Educate and train health workers in disease surveillance, control & treatment and health education	S	SH	Y	DOAP sessions	Skill assessment			
CM8.7	Describe the principles of management of information systems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Demography and vital statistics		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
CM9.1	Define and describe the principles of Demography, Demographic cycle, Vital statistics	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM9.3	Enumerate and describe the causes of declining sex ratio and its social and health implications	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.4	Enumerate and describe the causes and consequences of population explosion and population dynamics of India.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology	
CM9.6	Describe the National Population Policy	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.7	Enumerate the sources of vital statistics including census, SRS, NFHS, NSSO etc	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Reproductive maternal and child health		Number of competencies:(09)			Number of procedures that require certification: (NIL)				
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics	
CM10.6	Enumerate and describe various family planning methods, their advantages and shortcomings	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM10.7	Enumerate and describe the basis and principles of the Family Welfare Program including the organization, technical and operational aspects	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.8	Describe the physiology, clinical management and principles of adolescent health including ARSH	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.9	Describe and discuss gender issues and women empowerment	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Occupational Health		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
CM11.1	Enumerate and describe the presenting features of patients with occupational illness including agriculture	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.2	Describe the role, benefits and functioning of the employees state insurance scheme	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.3	Enumerate and describe specific occupational health hazards, their risk factors and preventive measures	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.4	Describe the principles of ergonomics in health preservation	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.5	Describe occupational disorders of health professionals and their prevention & management	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Geriatric services		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
Topic: Disaster Management Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Topic: Hospital waste management Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
Topic: Mental Health Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Essential Medicine		Number of competencies: (3)			Number of procedures that require certification: (NIL)				
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
Topic: Recent advances in Community Medicine		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM20.1	List important public health events of last five years	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM20.2	Describe various issues during outbreaks and their prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.3	Describe any event important to Health of the Community	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.4	Demonstrate awareness about laws pertaining to practice of medicine such as Clinical establishment Act and Human Organ Transplantation Act and its implications	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Intergration									
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Biochemistry									
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lectures, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Pathology									
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Community Medicine
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Microbiology									
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	Community Medicine
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written / Viva voce			
Pharmacology									
PH1.55	Describe and discuss the following National Health programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filariasis, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, Cancer and Iodine deficiency	K	KH	Y	Lecture	Written / Viva voce			Community Medicine
Forensic Medicine & Toxicology									
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine	
Dermatology, Venereology & Leprosy									
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Microbiology, Community Medicine
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
Ophthalmology									
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussions	Written / Viva voce			Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Psychiatry									
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.2	Describe the objectives strategies and contents of the of the National Mental Health Programme	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
General Medicine									
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pathology, Physiology, Community Medicine	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology, Community Medicine	
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	short note		Community Medicine	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lectures, Small group discussions	short note/ Viva voce		Pathology, Community Medicine	
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	

Obstetrics & Gynaecology

OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	Pediatrics
OG8.1	Enumerate describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors	K	KH	Y	Small group discussions, Bedside clinics, Lecture	Written / Viva voce/ Skill assessment		Community Medicine	
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including OC, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussions, Bedside clinics	Written / Viva voce/ Skill assessment		Community Medicine	
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	

Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.7	Visit a Child Developmental unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.2	Discuss the principles the initiation, attributes , frequency, techniques and hygiene related to complementary feeding including	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for Assessment and classification of Nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion,	Written / Viva voce		Community Medicine	
PE9.4	Elicit, Document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skill Lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related Calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	
PE9.7	Plan an appropriate diet in Health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
PE18.1	List and explain the components, plans, outcomes of Reproductive child health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by Visiting the Rural Health Centre	S	KH	Y	Bedside clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm , organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.12	Observe the Administration the UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE29.5	Discuss the National anaemia Control program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
General Surgery									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in surgery	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
Respiratory Medicine									
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.18	Educate health care workers on national programs of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	

GENERAL MEDICINE (CODE: IM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL MEDICINE									
Topic: Heart Failure		Number of competencies: (30)			Number of procedures that require certification : (01)				
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe ,discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.10	Elicit document and present an appropriate history that will establish the diagnosis, cause and severity of heart failure including: presenting complaints, precipitating and exacerbating factors, risk factors exercise tolerance, changes in sleep patterns, features suggestive of infective endocarditis	S	SH	Y	Bedside clinic	Skill assessment			
IM1.11	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and estimate its severity including: measurement of pulse, blood pressure and respiratory rate, jugular venous forms and pulses, peripheral pulses, conjunctiva and fundus, lung, cardiac examination including palpation and auscultation with identification of heart sounds and murmurs, abdominal distension and splenic palpation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.12	Demonstrate peripheral pulse, volume, character, quality and variation in various causes of heart failure	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.13	Measure the blood pressure accurately, recognise and discuss alterations in blood pressure in valvular heart disease and other causes of heart failure and cardiac tamponade	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.14	Demonstrate and measure jugular venous distension	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.15	Identify and describe the timing, pitch quality conduction and significance of precordial murmurs and their variations	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.16	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment			
IM1.17	Order and interpret diagnostic testing based on the clinical diagnosis including 12 lead ECG, Chest radiograph, blood cultures	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.18	Perform and interpret a 12 lead ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.20	Determine the severity of valvular heart disease based on the clinical and laboratory and imaging features and determine the level of intervention required including surgery	C	SH	Y	Small group discussion, Lecture, Bedside clinic	Written/ Skill assessment			
IM1.21	Describe and discuss and identify the clinical features of acute and subacute endocarditis, echocardiographic findings, blood culture and sensitivity and therapy	K	KH/SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment			
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.23	Describe, prescribe and communicate non pharmacologic management of heart failure including sodium restriction, physical activity and limitations	S/C	SH	Y	Lecture, Small group discussion	Skill assessment			
IM1.24	Describe and discuss the pharmacology of drugs including indications, contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Viva voce/written		Pharmacology	
IM1.25	Enumerate the indications for valvuloplasty, valvotomy, coronary revascularization and cardiac transplantation	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Viva voce/written			
IM1.26	Develop document and present a management plan for patients with heart failure based on type of failure, underlying aetiology	S	SH	Y	Bedside clinic, Skill assessment, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM1.28	Enumerate the causes of adult presentations of congenital heart disease and describe the distinguishing features between cyanotic and acyanotic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.29	Elicit document and present an appropriate history, demonstrate correctly general examination, relevant clinical findings and formulate document and present a management plan for an adult patient presenting with a common form of congenital heart disease	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	Log book documentation of completion		Pharmacology	
Topic: Acute Myocardial Infarction/ IHD									
Number of competencies: (24)					Number of procedures that require certification : (02)				
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM2.6	Elicit document and present an appropriate history that includes onset evolution, presentation risk factors, family history, comorbid conditions, complications, medication, history of atherosclerosis, IHD and coronary syndromes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.7	Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.8	Generate document and present a differential diagnosis based on the clinical presentation and prioritise based on "cannot miss", most likely diagnosis and severity	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.9	Distinguish and differentiate between stable and unstable angina and AMI based on the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.10	Order, perform and interpret an ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.11	Order and interpret a Chest X-ray and markers of acute myocardial infarction	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Biochemistry	
IM2.13	Discuss and enumerate the indications for and findings on echocardiogram, stress testing and coronary angiogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.14	Discuss and describe the indications for admission to a coronary care unit and supportive therapy for a patient with acute coronary syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.16	Discuss and describe the indications for acute thrombolysis, PTCA and CABG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.17	Discuss and describe the indications and methods of cardiac rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.19	Discuss and describe the pathogenesis, recognition and management of complications of acute coronary syndromes including arrhythmias, shock, LV dysfunction, papillary muscle rupture and pericarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.21	Observe and participate in a controlled environment an ACLS program	S	KH	N	DOAP session	NA			
IM2.22	Perform and demonstrate in a mannequin BLS	S	P	Y	DOAP session	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.24	Counsel and communicate to patients with empathy lifestyle changes in atherosclerosis / post coronary syndromes	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Pneumonia		Number of competencies: (19)			Number of procedures that require certification: (NIL)				
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiologies of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM3.4	Elicit document and present an appropriate history including the evolution, risk factors including immune status and occupational risk	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.5	Perform, document and demonstrate a physical examination including general examination and appropriate examination of the lungs that establishes the diagnosis, complications and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.6	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM3.8	Demonstrate in a mannequin and interpret results of an arterial blood gas examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.9	Demonstrate in a mannequin and interpret results of a pleural fluid aspiration	S	SH	Y	DOAP session	Skill assessment			
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.15	Describe and enumerate the indications for hospitalisation in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.16	Describe and enumerate the indications for isolation and barrier nursing in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.17	Describe and discuss the supportive therapy in patients with pneumonia including oxygen use and indications for ventilation	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.18	Communicate and counsel patient on family on the diagnosis and therapy of pneumonia	C/A	SH	Y	DOAP session	Skill assessment			
IM3.19	Discuss, describe, enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	

Topic: Fever and febrile syndromes

Number of competencies: (26)

Number of procedures that require certification : (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and comorbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g.Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.7	Discuss and describe the pathophysiology and manifestations of the sepsis syndrome	K	K	Y	Lecture, Small group discussion	Written			
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.10	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM4.11	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book/ documentation/ Skill assessment		Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	Written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	Skills lab	Log book/ documentation/ DOAP session		Pathology	
IM4.18	Enumerate the indications for use of imaging in the diagnosis of febrile syndromes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.21	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.24	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment			
IM4.25	Communicate to the patient and family the diagnosis and treatment	C	SH	Y	DOAP session	Skill assessment		AETCOM	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
Topic: Liver disease		Number of competencies: (18)				Number of procedures that require certification : (NIL)			
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
IM5.9	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes clinical presentation, risk factors, drug use, sexual history, vaccination history and family history	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.10	Perform a systematic examination that establishes the diagnosis and severity that includes nutritional status, mental status, jaundice, abdominal distension ascites, features of portosystemic hypertension and hepatic encephalopathy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	K	KH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases.	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.15	Assist in the performance and interpret the findings of an ascitic fluid analysis	S	KH	Y	DOAP session	documentation in log book			
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.17	Enumerate the indications, precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	Written, Small group discussion	Written/ Viva voce		Microbiology	
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
Topic: HIV Number of competencies: (23) Number of procedures that require certification : (NIL)									
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.7	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes risk factors for HIV, mode of infection, other sexually transmitted diseases, risks for opportunistic infections and nutritional status	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.8	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
IM6.9	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose opportunistic infections including CBC, sputum examination and cultures, blood cultures, stool analysis, CSF analysis and Chest radiographs	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.11	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM6.12	Enumerate the indications for and interpret the results of: pulse oximetry, ABG, Chest Radiograph	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret AFB sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.15	Demonstrate in a model the correct technique to perform a lumbar puncture	S	SH	Y	Simulation	Skill assessment		Microbiology	
IM6.16	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.17	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Enumerate the indications and discuss prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.19	Counsel patients on prevention of HIV transmission	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.20	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.21	Communicate with patients on the importance of medication adherence	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.22	Demonstrate understanding of ethical and legal issues regarding patient confidentiality and disclosure in patients with HIV	K/A	SH	Y	DOAP session, Small group discussion	Viva voce/ Written/ Skill Assessment		AETCOM	
IM6.23	Demonstrate a non-judgemental attitude to patients with HIV and to their lifestyles	A	SH	Y	Small group discussion	observation by teacher		AETCOM	
Topic: Rheumatologic problems		Number of competencies: (27)			Number of procedures that require certification: (NIL)				
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.3	Classify cause of joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.4	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.5	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.8	Determine the potential causes of joint pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.9	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the systemic manifestations of rheumatologic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.11	Elicit document and present a medical history that will differentiate the aetiologies of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM7.12	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			Orthopedics
IM7.13	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K/S	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.14	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.15	Enumerate the indications for and interpret the results of : CBC, anti-CCP, RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pathology	
IM7.16	Enumerate the indications for arthrocentesis	K	K	Y	Small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.17	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.18	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment/ Written			
IM7.19	Develop an appropriate treatment plan for patients with rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.20	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM7.21	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.22	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM7.23	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pharmacology	
IM7.24	Communicate and incorporate patient preferences in the choice of therapy	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
IM7.25	Develop and communicate appropriate follow up and monitoring plans for patients with rheumatologic conditions	C	SH	Y	DOAP session	Skill assessment			
IM7.26	Demonstrate an understanding of the impact of rheumatologic conditions on quality of life, well being, work and family	A	SH	Y	DOAP session	Skill assessment			
IM7.27	Determine the need for specialist consultation	K	K	Y	Small group discussion, Lecture	Viva voce			
Topic: Hypertension		Number of competencies: (20)			Number of procedures that require certification: (NIL)				
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.6	Define, describe and discuss and recognise hypertensive urgency and emergency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.9	Elicit document and present a medical history that includes: duration and levels, symptoms, comorbidities, lifestyle, risk factors, family history, psychosocial and environmental factors, dietary assessment, previous and concomitant therapy	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.10	Perform a systematic examination that includes : an accurate measurement of blood pressure, fundus examination, examination of vasculature and heart	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.12	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.13	Enumerate the indications for and interpret the results of : CBC, Urine routine, BUN, Cr, Electrolytes, Uric acid, ECG	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM8.16	Develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake	C	SH	Y	DOAP session	Skill assessment			
IM8.17	Perform and interpret a 12 lead ECG	S	P	Y	DOAP session	documentation in log book/ skills station			
IM8.18	Incorporate patient preferences in the management of HTN	A/C	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.19	Demonstrate understanding of the impact of Hypertension on quality of life, well being, work and family	A	SH	Y	Bedside clinic, DOAP session	observation by faculty			
IM8.20	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anemia		Number of competencies: (21)			Number of procedures that require certification : (NIL)				
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.3	Elicit document and present a medical history that includes symptoms, risk factors including GI bleeding, prior history, medications, menstrual history, and family history	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
IM9.4	Perform a systematic examination that includes : general examination for pallor, oral examination, DOAP session of hyper dynamic circulation, lymph node and splenic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM9.5	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.6	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.7	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.8	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.10	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM9.11	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.12	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pharmacology	
IM9.14	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM9.15	Communicate the diagnosis and the treatment appropriately to patients	C	SH	Y	DOAP session	Skill assessment			
IM9.16	Incorporate patient preferences in the management of anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.17	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the precautions required necessary when performing a blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
IM9.19	Assist in a blood transfusion	S	SH	Y	Bedside clinic	document in log book			
IM9.20	Communicate and counsel patients with methods to prevent nutritional anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.21	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written			
Topic: Acute Kidney Injury and Chronic renal failure		Number of competencies: (31)			Number of procedures that require certification: (NIL)				
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.12	Elicit document and present a medical history that will differentiate the aetiologies of disease, distinguish acute and chronic disease, identify predisposing conditions, nephrotoxic drugs and systemic causes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.13	Perform a systematic examination that establishes the diagnosis and severity including determination of volume status, presence of edema and heart failure, features of uraemia and associated systemic disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.14	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.15	Describe the appropriate diagnostic work up based on the presumed aetiology	K	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.16	Enumerate the indications for and interpret the results of : renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.18	Identify the ECG findings in hyperkalemia	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM10.20	Describe and discuss the indications to perform arterial blood gas analysis: interpret the data	S	P	Y	DOAP session	documentation in log book			
IM10.21	Describe and discuss the indications for and insert a peripheral intravenous catheter	S	P	Y	DOAP session, Bedside clinic	documentation in logbook			
IM10.22	Describe and discuss the indications, demonstrate in a model and assist in the insertion of a central venous or a dialysis catheter	S	SH	N	DOAP session	Skill assessment with model			
IM10.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment			
IM10.24	Counsel patients on a renal diet	K	SH	Y	DOAP session	Skill assessment			
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM10.26	Describe and discuss supportive therapy in CKD including diet, anti hypertensives, glycemc therapy, dyslipidemia, anemia, hyperkalemia, hyperphosphatemia and secondary hyperparathyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.27	Describe and discuss the indications for renal dialysis	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.28	Describe and discuss the indications for renal replacement therapy	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.29	Describe discuss and communicate the ethical and legal issues involved in renal replacement therapy	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.30	Recognise the impact of CKD on patient's quality of life well being work and family	A	K	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
IM10.31	Incorporate patient preferences in to the care of CKD	A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
Topic: Diabetes Mellitus		Number of competencies: (24)			Number of procedures that require certification : (02)				
IM11.1	Define and classify diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.4	Describe and discuss the genetic background and the influence of the environment on diabetes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.6	Describe and discuss the pathogenesis and precipitating factors, recognition and management of diabetic emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.7	Elicit document and present a medical history that will differentiate the aetiologies of diabetes including risk factors, precipitating factors, lifestyle, nutritional history, family history, medication history, co-morbidities and target organ disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.8	Perform a systematic examination that establishes the diagnosis and severity that includes skin, peripheral pulses, blood pressure measurement, fundus examination, detailed examination of the foot (pulses, nervous and deformities and injuries)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.9	Describe and recognise the clinical features of patients who present with a diabetic emergency	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.14	Recognise the presentation of hypoglycaemia and outline the principles on its therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.15	Recognise the presentation of diabetic emergencies and outline the principles of therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce		Pharmacology	
IM11.17	Outline a therapeutic approach to therapy of T2Diabetes based on presentation, severity and complications in a cost effective manner	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM11.20	Demonstrate to and counsel patients on the correct technique of self monitoring of blood glucoses	S/C	SH	Y	DOAP session	Skill assessment			
IM11.21	Recognise the importance of patient preference while selecting therapy for diabetes	A	KH	Y	DOAP session	faculty observation			
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.23	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of diabetic ketoacidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.24	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of Hyperosmolar non ketotic state	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Thyroid dysfunction		Number of competencies: (15)			Number of procedures that require certification : (NIL)				
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.2	Describe and discuss the genetic basis of some forms of thyroid dysfunction	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	Short notes		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM12.4	Describe and discuss the principles of radio iodine uptake in the diagnosis of thyroid disorders	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce			
IM12.5	Elicit document and present an appropriate history that will establish the diagnosis cause of thyroid dysfunction and its severity	S	SH	Y	Bedside clinic	Skill assessment/ Short case			
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	Short note		Community Medicine	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common malignancies		Number of competencies: (19)			Number of procedures that require certification : (NIL)				
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.5	Describe the common issues encountered in patients at the end of life and principles of management	K	K	N	Lecture, Small group discussion	Short note/ Viva voce			
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.11	Order and interpret diagnostic testing based on the clinical diagnosis including CBC and stool occult blood and prostate specific antigen	S	K	Y	Bedside clinic	Skill assessment/ Short case			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pathology	
IM13.16	Demonstrate an understanding and needs and preferences of patients when choosing curative and palliative therapy	A/C	KH	Y	Bedside clinic, small group discussion	Short note/ Viva voce		AETCOM	
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	Anesthesiology
IM13.18	Describe and discuss the ethical and the medico legal issues involved in end of life care	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
IM13.19	Describe the therapies used in alleviating suffering in patients at the end of life	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
Topic: Obesity		Number of competencies: (15)			Number of procedures that require certification: (NIL)				
IM14.1	Define and measure obesity as it relates to the Indian population	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.6	Elicit and document and present an appropriate history that includes the natural history, dietary history, modifiable risk factors, family history, clues for secondary causes and motivation to lose weight	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.7	Perform, document and demonstrate a physical examination based on the history that includes general examination, measurement of abdominal obesity, signs of secondary causes and comorbidities	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			
IM14.9	Order and interpret diagnostic tests based on the clinical diagnosis including blood glucose, lipids, thyroid function tests etc.	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.10	Describe the indications and interpret the results of tests for secondary causes of obesity	K	KH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.11	Communicate and counsel patient on behavioural, dietary and lifestyle modifications	C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.12	Demonstrate an understanding of patient's inability to adhere to lifestyle instructions and counsel them in a non - judgemental way	A/C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.15	Describe and enumerate and educate patients, health care workers and the public on measures to prevent obesity and promote a healthy lifestyle	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
Topic: GI bleeding Number of competencies: (18) Number of procedures that require certification : (NIL)									
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit and document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/Viva voce		Pharmacology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
Topic: Diarrheal disorder		Number of competencies: (17)			Number of procedures that require certification : (NIL)				
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non infectious causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM16.2	Describe and discuss the acute systemic consequences of diarrhea including its impact on fluid balance	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.3	Describe and discuss the chronic effects of diarrhea including malabsorption	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel , sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic, Skills lab	Skill assessment		Microbiology, Pathology	
IM16.5	Perform, document and demonstrate a physical examination based on the history that includes general examination, including an appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM16.6	Distinguish between diarrhea and dysentery based on clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.7	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ short note/ Viva voce			
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM16.10	Identify vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.15	Distinguish based on the clinical presentation Crohn's disease from Ulcerative Colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM16.17	Describe and enumerate the indications for surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
Topic: Headache		Number of competencies: (14)			Number of procedures that require certification : (NIL)				
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy	
IM17.2	Elicit and document and present an appropriate history including aura, precipitating aggravating and relieving factors, associated symptoms that help identify the cause of headaches	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.3	Classify migraine and describe the distinguishing features between classical and non classical forms of migraine	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.4	Perform and demonstrate a general neurologic examination and a focused examination for signs of intracranial tension including neck signs of meningitis	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.5	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ skill assessment			
IM17.6	Choose and interpret diagnostic testing based on the clinical diagnosis including imaging	S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill Assessment			
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM17.10	Enumerate the indications for emergency care admission and immediate supportive care in patients with headache	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
Topic: Cerebrovascular accident		Number of competencies: (17)			Number of procedures that require certification : (NIL)				
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM18.3	Elicit and document and present an appropriate history including onset, progression, precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.4	Identify the nature of the cerebrovascular accident based on the temporal evolution and resolution of the illness	K	KH	Y	Bedside clinic, Small group discussion	Skill Assessment			
IM18.5	Perform, demonstrate & document physical examination that includes general and a detailed neurologic examination as appropriate, based on the history	S	SH	Y	Bedside clinic, DOAP session	Skill Assessment			
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM18.10	Choose and interpret the appropriate diagnostic testing in young patients with a cerebrovascular accident (CVA)	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.11	Describe the initial supportive management of a patient presenting with a cerebrovascular accident (CVA)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.12	Enumerate the indications for and describe acute therapy of non hemorrhagic stroke including the use of thrombolytic agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.13	Enumerate the indications for and describe the role of anti platelet agents in non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.14	Describe the initial management of a hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.15	Enumerate the indications for surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.16	Enumerate the indications describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM18.17	Counsel patient and family about the diagnosis and therapy in an empathetic manner	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Movement disorders									
					Number of competencies: (09)		Number of procedures that require certification : (NIL)		
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology	
IM19.2	Classify movement disorders of the brain based on distribution, rhythm, repetition, exacerbating and relieving factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM19.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the movement disorders	S	SH	Y	Bedside clinic	Skill assessment			
IM19.4	Perform, demonstrate and document a physical examination that includes a general examination and a detailed neurologic examination using standard movement rating scales	S	SH	Y	Bedside clinic	Skill assessment			
IM19.5	Generate document and present a differential diagnosis and prioritise based on the history and physical examination	S	SH	Y	Bedside clinic	Skill assessment			
IM19.6	Make a clinical diagnosis regarding on the anatomical location, nature and cause of the lesion based on the clinical presentation and findings	S	SH	Y	Bedside clinic	Skill assessment			
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group session	Skill assessment/ Written/ Viva voce		Radiodiagnosis	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Envenomation		Number of competencies: (09)			Number of procedures that require certification : (NIL)				
IM20.1	Enumerate the local poisonous snakes and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	
IM20.5	Perform a systematic examination, document and present a physical examination that includes general examination, local examination, appropriate cardiac and neurologic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM20.6	Choose and interpret the appropriate diagnostic testing in patients with snake bites	S	SH	Y	Small group discussion	Written/ Viva voce			
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.8	Describe the diagnosis, initial approach stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis initial approach stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
Topic: Poisoning		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Topic: Mineral, Fluid Electrolyte and Acid base Disorder									
				Number of competencies: (13)			Number of procedures that require certification : (NIL)		
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.5	Enumerate the causes and describe the clinical features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.6	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.7	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hypokalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.8	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyperkalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
Topic: Nutritional and Vitamin Deficiencies									
			Number of competencies: (05)			Number of procedures that require certification: (NIL)			
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.5	Counsel and communicate to patients in a simulated environment with illness on an appropriate balanced diet	S	SH	Y	DOAP session	Skill assessment			
Topic: Geriatrics		Number of competencies: (22)			Number of procedures that require certification : (NIL)				
IM24.1	Describe and discuss the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.3	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of acute confusional states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.4	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vascular events in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.6	Describe and discuss the aetiopathogenesis causes, clinical presentation, difference in discussion presentation identification, functional changes, acute care, stabilization, management and rehabilitation of dementia in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.8	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of osteoporosis in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.9	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of CVA in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.10	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
IM24.11	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
IM24.12	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.15	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.20	Enumerate and describe social interventions in the care of elderly including domiciliary discussion services, rehabilitation facilities, old age homes and state interventions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.21	Enumerate and describe ethical issues in the care of the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
Topic: Miscellaneous Infections		Number of competencies: (13)			Number of procedures that require certification : (NIL)				
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.5	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin, mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM25.6	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM25.8	Enumerate the indications for use of newer techniques in the diagnosis of these infections	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.10	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM25.12	Communicate to the patient and family the diagnosis and treatment of identified infection	C	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	
Topic: The role of the physician in the community Number of competencies: (49) Number of procedures that require certification : (NIL)									
IM26.1	Enumerate and describe professional qualities and roles of a physician	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.2	Describe and discuss the commitment to lifelong learning as an important part of physician growth	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.3	Describe and discuss the role of non maleficence as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.4	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.5	Describe and discuss the role of beneficence of a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.6	Describe and discuss the role of a physician in health care system	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.7	Describe and discuss the role of justice as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.8	Identify discuss medicolegal, socioeconomic and ethical issues as it pertains to organ donation	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.9	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as it pertains to rights, equity and justice in access to health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.10	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to confidentiality in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.11	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.12	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in health care including advanced directives and surrogate decision making	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.13	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in emergency care including situations where patients do not have the capability or capacity to give consent	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.14	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to research in human subjects	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.15	Identify, discuss and defend, medicolegal,socio-cultural and ethical issues as they pertain to consent for surgical procedures	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.16	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues as it pertains to the physician patient relationship (including fiduciary duty)	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.17	Identify, discuss physician's role and responsibility to society and the community that she/ he serves	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.18	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues in physician- industry relationships	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.19	Demonstrate ability to work in a team of peers and superiors	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.20	Demonstrate ability to communicate to patients in a patient, respectful, non threatening, non judgemental and empathetic manner	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.21	Demonstrate respect to patient privacy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.22	Demonstrate ability to maintain confidentiality in patient care	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.23	Demonstrate a commitment to continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.24	Demonstrate respect in relationship with patients, fellow team members, superiors and other health care workers	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.25	Demonstrate responsibility and work ethics while working in the health care team	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.26	Demonstrate ability to maintain required documentation in health care (including correct use of medical records)	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.27	Demonstrate personal grooming that is adequate and appropriate for health care responsibilities	S	SH	Y	Small group discussion	Skill assessment			
IM26.28	Demonstrate adequate knowledge and use of information technology that permits appropriate patient care and continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.29	Communicate diagnostic and therapeutic options to patient and family in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.30	Communicate care options to patient and family with a terminal illness in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.31	Demonstrate awareness of limitations and seeks help and consultations appropriately	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.32	Demonstrate appropriate respect to colleagues in the profession	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.33	Demonstrate an understanding of the implications and the appropriate procedures and response to be followed in the event of medical errors	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.34	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.35	Demonstrate empathy in patient encounters	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.36	Demonstrate ability to balance personal and professional priorities	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.37	Demonstrate ability to manage time appropriately	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.38	Demonstrate ability to form and function in appropriate professional networks	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.39	Demonstrate ability to pursue and seek career advancement	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.40	Demonstrate ability to follow risk management and medical error reduction practices where appropriate	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.41	Demonstrate ability to work in a mentoring relationship with junior colleagues	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.42	Demonstrate commitment to learning and scholarship	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
IM26.44	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to medical negligence	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.45	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to malpractice	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.46	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues in dealing with impaired physicians	K	KH	N	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.47	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to refusal of care including do not resuscitate and withdrawal of life support	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.48	Demonstrate altruism	S	SH	Y	Small group discussion	Written/ Viva voce			
IM26.49	Administer informed consent and appropriately address patient queries to a patient being enrolled in a research protocol in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									

Integration

Human Anatomy

AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal, dorsalis pedis, post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine, General Surgery	
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2)ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Medicine, Pediatrics	Physiology
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedict's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
Physiology									
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	S	SH	Y	Lecture, Small group discussion	Practical/ Viva voce		General Medicine	Biochemistry
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/Viva voce		General Medicine	
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs, therapeutic enzymes and the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.4	Define and differentiate the pathways of carbohydrate metabolism (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas e.g., hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Viva voce/ Skill assessment		Pathology, General Medicine	Physiology
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI9.2	Discuss the involvement of ECM components in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	Lecture, Small group discussion	Skill assessment	1	General Medicine	Physiology
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine Pathology	
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI1.26	Calculate albumin: globulin (AG) ratio and creatinine clearance	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.27	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	S	SH	N	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.28	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Pathology									
PA6.1	Define and describe edema its types pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA9.5	Define and describe the pathogenesis of systemic lupus erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe the laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe indices and peripheral blood smear	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA25.6	Interpret a liver function and viral hepatitis serology panel. Distinguish obstructive from non obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic, features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic, features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features, progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.12	Define classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Microbiology									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification, etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala-azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	
MI2.7	Describe the epidemiology, the etio- pathogenesis evolution complications, opportunistic infections, diagnosis prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio- pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain).	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate it types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: Anti-histaminics, 5-HT modulating drugs, NSAIDs, Drugs for gout, Anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of Antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as Antiarrhythmics	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology, Pharmacology
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology, Pharmacology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, Pharmacology	
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	Skill station		General Medicine	
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	Short note/ Viva voce		General Medicine	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, ENT	
CM3.3	Describe the aetiology and basis of water borne diseases/jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures.	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.3	Enumerate and describe disease-specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. - documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry, General Medicine	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids Organic-Carbolic Acid (phenol), Oxalic and acetylsalicylic acids .	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs& solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small group discussion	Logbook Skill station/Viva voce/ OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination .	S	SH	Y	Bedside clinic, Small group discussion/DOAP session	Skill lab/Viva voce		General Medicine	

Dermatology, Venereology & Leprosy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Lecture, Small group discussion	Bedside clinic session/ Skill assessment		General Medicine	
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted diseases	C	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology, Microbiology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo- & hyperthyroidism	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Anesthesiology									
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
AS2.2	Enumerate the indications, describe the steps and demonstrate in a simulated environment advanced life support in adults and children	S	SH	N	DOAP session	Skill assessment		General Medicine	
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce			General Medicine
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Otorhinolaryngology (ENT)									
EN4.53	Describe the Clinical features, Investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Ophthalmology									
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Dentistry									
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, General Medicine	
Psychiatry									
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Lecture/ Small group discussion			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
Obstetrics & Gynaecology									
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.2	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of urinary tract infections	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of liver disease	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss Screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
Pediatrics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynecology
General Surgery									
SU22.6	Describe and discuss the clinical features of hypo- & hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Orthopaedics									
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group Discussion, Bedside clinic	Written/ Viva voce OSCE			General Medicine
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, case discussion	Written/ Viva voce OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of comorbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the Vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group	Written Viva voce			General Medicine Psychiatry
Radiotherapy									
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery General Medicine

RESPIRATORY MEDICINE (CODE: CT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RESPIRATORY MEDICINE									
Topic: Tuberculosis		Number of competencies: (19)			Number of procedures that require certification : (01)				
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS)	K	KH	Y	Lecture, Small group discussion	written		Microbiology	
CT1.3	Discuss and describe the impact of co-infection with HIV and other co-morbid conditions. Like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.5	Elicit, document and present an appropriate medical history that includes risk factor, contacts, symptoms including cough and fever CNS and other manifestations	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.6	Demonstrate and perform a systematic examination that establishes the diagnosis based on the clinical presentation that includes a) general examination, b) examination of the chest and lung including loss of volume, mediastinal shift, percussion and auscultation (including DOAP session of lung sounds and added sounds) c) examination of the lymphatic system and d) relevant CNS examination	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.7	Perform and interpret a PPD (mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.8	Generate a differential diagnosis based on the clinical history and evolution of the disease that prioritises the most likely diagnosis	K	K	Y	Bedside clinic, Small group discussion	Bedside clinic/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.9	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing	K	K	Y	Bedside clinic, DOAP session	Skill assessment			
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.11	Assist in the performance, outline the correct tests that require to be performed and interpret the results of a pleural fluid aspiration	S	SH	Y	Skill assessment	Skill assessment			
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origin, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
CT1.14	Describe and discuss the pharmacology of various anti-tuberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.17	Define criteria for the cure of Tuberculosis; describe and recognise the features of drug resistant tuberculosis, prevention and therapeutic regimens	S	P	Y	Lecture, Small group discussion	Written			
CT1.18	Educate health care workers on National Program of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.19	Communicate with patients and family in an empathetic manner about the diagnosis, therapy	S	P	Y	DOAP session	Skill assessment		AETCOM	
Topic: Obstructive airway disease Number of competencies: (28) Number of procedures that require certification : (01)									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology , Pathology	
CT2.3	Enumerate and describe the causes of acute episodes in patients with obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.8	Elicit document and present a medical history that will differentiate the aetiologies of obstructive airway disease, severity and precipitants	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT2.9	Perform a systematic examination that establishes the diagnosis and severity that includes measurement of respiratory rate, level of respiratory distress, effort tolerance, breath sounds, added sounds, identification of signs of consolidation pleural effusion and pneumothorax	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written			
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
CT2.12	Perform and interpret peak expiratory flow rate	S	P	Y	Bedside clinic, DOAP session	documentation in log book/ Skill assessment	3		
CT2.13	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, Small group discussion	Written/ Skill assessment			
CT2.14	Enumerate the indications for and interpret the results of : pulse oximetry, ABG, Chest Radiograph	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.15	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CT2.17	Describe and discuss the indications for vaccinations in OAD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.18	Develop a therapeutic plan including use of bronchodilators and inhaled corticosteroids	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.19	Develop a management plan for acute exacerbations including bronchodilators, systemic steroids, antimicrobial therapy	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.20	Describe and discuss the principles and use of oxygen therapy in the hospital and at home	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.21	Describe discuss and counsel patients appropriately on smoking cessation	K/C	SH	Y	DOAP session	Skill assessment		AETCOM	
CT2.22	Demonstrate and counsel patient on the correct use of inhalers	S/C	SH	Y	DOAP session	Skill assessment			
CT2.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	K/C	SH	Y	DOAP session	Skill assessment			
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.28	Demonstrate an understanding for the difficulties faced by patients during smoking cessation	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty			
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Physiology									
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
Pharmacology									
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.44	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
General Medicine									
IM24.10	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
Pediatrics									
PE28.19	Describe the etio-pathogenesis, clinical features, diagnosis, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	P	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce	3	Respiratory Medicine	
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism eg Gastric Aspirate, Sputum, CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

PEDIATRICS (CODE: PE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PEDIATRICS									
Topic: Normal Growth and Development		Number of competencies : (07)			Number of procedures that require certification: (02)				
PE1.1	Define the terminologies Growth and development and discuss the factors affecting normal growth and development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.2	Discuss and describe the patterns of growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.4	Perform Anthropometric measurements, document in growth charts and interpret	S	P	Y	Small group discussion	Document in Log book	3		
PE1.5	Define development and discuss the normal developmental mile stones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.6	Discuss the methods of assessment of development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.7	Perform Developmental assessment and interpret	S	P	N	Bedside clinics, Skills Lab	Document in Log book	3		
Topic: Common problems related to Growth		Number of competencies:(06)			Number of procedures that require certification: (NIL)				
PE2.1	Discuss the etio-pathogenesis, clinical features and management of a child who fails to thrive	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.2	Assessment of a child with failing to thrive including eliciting an appropriate history and examination	S	SH	Y	Bedside clinics	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE2.3	Counselling a parent with failing to thrive child	A/C	SH	Y	OSPE	Document in Log book		AETCOM	
PE2.4	Discuss the etio-pathogenesis, clinical features and management of a child with short stature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.5	Assessment of a child with short stature: Elicit history, perform examination, document and present	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE2.6	Enumerate the referral criteria for growth related problems	K	K	Y	Small group discussion	Written/ Viva voce			
Topic: Common problems related to Development -1 (Developmental delay , Cerebral palsy) Number of competencies:(08) Number of procedures that require certification: (NIL)									
PE3.1	Define, enumerate and discuss the causes of developmental delay and disability including intellectual disability in children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.2	Discuss the approach to a child with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.3	Assessment of a child with developmental delay - Elicit document and present history	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE3.4	Counsel a parent of a child with developmental delay	S	SH	Y	DOAP session	Document in Log Book			
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.6	Discuss the referral criteria for children with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.7	Visit a Child Developmental Unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group, Bedside clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common problems related to Development-2 (Scholastic backwardness, Learning Disabilities , Autism , ADHD) Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE4.1	Discuss the causes and approach to a child with scholastic backwardness	K	K	N	Lecture, Small group discussion	Written			
PE4.2	Discuss the etiology, clinical features, diagnosis and management of a child with Learning Disabilities	K	K	N	Lecture, Small group discussion	Written			
PE4.3	Discuss the etiology, clinical features, diagnosis and management of a child with Attention Deficit Hyperactivity Disorder (ADHD)	K	K	N	Lecture, Small group discussion	Written			
PE4.4	Discuss the etiology, clinical features, diagnosis and management of a child with Autism	K	K	N	Lecture, Small group discussion	Written			
PE4.5	Discuss the role of Child Guidance clinic in children with Developmental problems	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PE4.6	Visit to the Child Guidance Clinic	S	KH	N	Lecture, Small group discussion	Document in Log Book			
Topic: Common problems related to behavior Number of procedures that require certification: (NIL) Number of competencies: (11)									
PE5.1	Describe the clinical features, diagnosis and management of thumb sucking	K	K	N	Lecture, Small group discussion	Written			
PE5.2	Describe the clinical features, diagnosis and management of Feeding problems	K	K	N	Lecture, Small group discussion	Written			
PE5.3	Describe the clinical features, diagnosis and management of nail biting	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE5.5	Describe the clinical features, diagnosis and management of temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.6	Describe the clinical features, diagnosis and management of Pica	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.8	Discuss the etiology, clinical features and management of Enuresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.9	Discuss the etiology, clinical features and management of Encopresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.10	Discuss the role of child guidance clinic in children with behavioural problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.11	Visit to Child Guidance Clinic and observe functioning	K	KH	N	Lecture, Small group discussion	Document in Log Book			

Topic: Adolescent Health & common problems related to Adolescent Health **Number of competencies: (13)** **Number of procedures that require certification: (NIL)**

PE6.1	Define Adolescence and stages of adolescence	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.2	Describe the physical, physiological and psychological changes during adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.3	Discuss the general health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.4	Describe adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain the Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE6.6	Discuss the common Adolescent eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.8	Respecting patient privacy and maintaining confidentiality while dealing with adolescence	A	SH	Y	Bedside clinics	Document in log book			AETCOM
PE6.9	Perform routine Adolescent Health check up including eliciting history, performing examination including SMR (Sexual Maturity Rating), growth assessments (using Growth charts) and systemic exam including thyroid and Breast exam and the HEADSS screening	S	SH	Y	Bedside clinics	Skills station			
PE6.10	Discuss the objectives and functions of AFHS (Adolescent Friendly Health Services) and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE6.11	Visit to the Adolescent Clinic	S	KH	Y	DOAP session	Document in Log Book			
PE6.12	Enumerate the importance of obesity and other NCD in adolescents	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
<p>Topic: To promote and support optimal Breast feeding for Infants Number of competencies: (11) Number of procedures that require certification: (01)</p>									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva			Obstetrics & Gynaecology
PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and Human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE7.4	Discuss the advantages of breast milk	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.5	Observe the correct technique of breast feeding and distinguish right from wrong techniques	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3		
PE7.6	Enumerate the baby friendly hospital initiatives	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			Obstetrics & Gynaecology, AETCOM
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.9	Educate and counsel mothers for best practices in Breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.10	Respects patient privacy	A	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.11	Participate in Breast Feeding Week Celebration	A	SH	Y	DOAP session	Document in Log Book			
Topic: Complementary Feeding Number of competencies : (05) Number of procedures that require certification: (NIL)									
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE8.2	Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	

Topic: Normal nutrition, assessment and monitoring

Numbcompetencies : (07)

Number of procedures that require certification: (NIL)

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for assessment and classification of nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE9.4	Elicit document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skills lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE9.7	Plan an appropriate diet in health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	
Topic: Provide nutritional support , assessment and monitoring for common nutritional problems Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE10.1	Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bedside clinics, Skills lab	Skill station		Physiology, Biochemistry	
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE10.5	Counsel parents of children with SAM and MAM	S	SH	Y	Bedside clinic, Skills Station	Document in Log book		AETCOM	
PE10.6	Enumerate the role of locally prepared therapeutic diets and ready to use therapeutic diets	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Obesity in children Number of competencies: (06) Number of procedures that require certification: (01)									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bedside clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.10	Discuss the role of screening for Vitamin D deficiency	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis management and prevention of deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA, dietary sources of Vitamin B and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, diagnosis and management of deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bedside clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter Control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA, dietary sources of Magnesium and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
Topic: Toxic elements and free radicals and oxygen toxicity Number of competencies: (05) Number of procedures that require certification (NIL)									
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.2	Discuss the risk factors, clinical features, diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.5	Discuss the risk factors, clinical features, diagnosis and management of Oxygen toxicity	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Fluid and electrolyte balance Number of competencies:(07) Number of procedures that require certification:(NIL)									
PE15.1	Discuss the fluid and electrolyte requirement in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.2	Discuss the clinical features and complications of fluid and electrolyte imbalance and outline the management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.3	Calculate the fluid and electrolyte requirement in health	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.4	Interpret electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.5	Calculate fluid and electrolyte imbalance	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.6	Demonstrate the steps of inserting an IV cannula in a model	S	SH	Y	Skills Lab	mannequin			
PE15.7	Demonstrate the steps of inserting an interosseous line in a mannequin	S	SH	Y	Skills Lab	mannequin			
Topic: Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Guideline Number of competencies:(03) Number of procedures that require certification: (NIL)									
PE16.1	Explain the components of Integrated Management of Neonatal and Childhood Illnesses (IMNCI) guidelines and method of Risk stratification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE16.2	Assess children <2 months using IMNCI Guidelines	S	SH	Y	DOAP session	Document in log Book			
PE16.3	Assess children >2 to 5 years using IMNCI guidelines and Stratify Risk	S	SH	Y	DOAP session	Document in log Book			
Topic: The National Health programs, NHM Number of competencies:(02) Number of procedures that require certification: (NIL)									
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
Topic: The National Health Programs: RCH Number of competencies: (08) Number of procedures that require certification: (NIL)									
PE18.1	List and explain the components, plan, outcome of Reproductive Child Health (RCH) program and appraise its monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.7	Educate and counsel caregivers of children	A	SH	Y	Postnatal ward, standardized patient	Skill Assessment		AETCOM	
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
Topic: National Programs, RCH - Universal Immunizations program Number of competencies: (16) Number of procedures that require certification: (01)									
PE19.1	Explain the components of the Universal Immunization Program and the National Immunization Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, pre-term, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.6	Assess patient for fitness for immunization and prescribe an age appropriate immunization schedule	S	P	Y	Out Patient clinics Skills lab	Skill Assessment	5		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.7	Educate and counsel a patient for immunization	A/C	SH	Y	DOAP session	Document in Log Book			
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.9	Describe the components of safe vaccine practice – Patient education/ counselling; adverse events following immunization, safe injection practices, documentation and Medico-legal implications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
PE19.10	Observe the handling and storing of vaccines	S	SH	Y	DOAP session	Written/ Viva voce			
PE19.11	Document Immunization in an immunization record	S	SH	Y	Out Patient clinics, Skills lab	Skill assessment			
PE19.12	Observe the administration of UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE19.13	Demonstrate the correct administration of different vaccines in a mannequin	S	SH	Y	DOAP session	Document in Log Book			
PE19.14	Practice Infection control measures and appropriate handling of the sharps	S	SH	Y	DOAP session	Document in Log Book			
PE19.15	Explain the term implied consent in Immunization services	K	K	Y	Small group discussion	Written/ Viva voce			
PE19.16	Enumerate available newer vaccines and their indications including pentavalent pneumococcal, rotavirus, JE, typhoid IPV & HPV	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Topic: Care of the Normal New born, and High risk New born

Number of competencies: (20)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.1	Define the common neonatal nomenclatures including the classification and describe the characteristics of a Normal Term Neonate and High Risk Neonates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.2	Explain the care of a normal neonate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.3	Perform Neonatal resuscitation in a manikin	S	SH	Y	DOAP session	Log book entry of Performance			
PE20.4	Assessment of a normal neonate	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE20.5	Counsel / educate mothers on the care of neonates	A/C	SH	Y	DOAP session	Log book documentation			
PE20.6	Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE20.7	Discuss the etiology, clinical features and management of Birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.8	Discuss the etiology, clinical features and management of respiratory distress in New born including meconium aspiration and transient tachypnoea of newborn	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.9	Discuss the etiology, clinical features and management of Birth injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.10	Discuss the etiology, clinical features and management of Hemorrhagic disease of New born	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.11	Discuss the clinical characteristics, complications and management of Low birth weight (preterm and Small for gestation)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.12	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.13	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypoglycemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.14	Discuss the etiology, clinical features and management of Neonatal hypocalcemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.15	Discuss the etiology, clinical features and management of Neonatal seizures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.16	Discuss the etiology, clinical features and management of Neonatal Sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.17	Discuss the etiology, clinical features and management of Perinatal infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.18	Identify and stratify risk in a sick neonate using IMNCI guidelines	S	SH	Y	DOAP session	Document in Log Book			
PE20.19	Discuss the etiology, clinical features and management of Neonatal hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.20	Identify clinical presentations of common surgical conditions in the new born including TEF, esophageal atresia, anal atresia, cleft lip and palate, congenital diaphragmatic hernia and causes of acute abdomen	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Topic: Genito-Urinary system

Number of competencies: (17)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.1	Enumerate the etio-pathogenesis, clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of acute post-streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.4	Discuss the approach and referral criteria to a child with Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
PE21.5	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic Renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis, clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.9	Identify external markers for Kidney disease, like Failing to thrive, hypertension, pallor, Icthyosis, anasarca	S	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE21.10	Analyse symptom and interpret the physical findings and arrive at an appropriate provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Log book			
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bedside clinics, Skills lab	Skill assessment		Biochemistry, Pathology	
PE21.12	Interpret report of Plain X Ray of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot’s Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis, clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE23.7	Elicit appropriate history for a cardiac disease, analyse the symptoms e.g. breathlessness, chest pain, tachycardia, feeding difficulty, failing to thrive, reduced urinary output, swelling, syncope, cyanotic spells, Suck rest cycle, frontal swelling in infants. Document and present	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.8	Identify external markers of a cardiac disease e.g. Cyanosis, Clubbing, dependent edema, dental caries, arthritis, erythema rash, chorea, subcutaneous nodules, Osler’s node, Janeway lesions and document	S	SH	Y	Bedside clinics, Skills Lab	Skill Assessment			
PE23.9	Record pulse, blood pressure, temperature and respiratory rate and interpret as per the age	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.10	Perform independently examination of the cardiovascular system – look for precordial bulge, pulsations in the precordium, JVP and its significance in children and infants, relevance of percussion in Pediatric examination, Auscultation and other system examination and document	S	SH	Y	Bedside clinics, Skills lab	Skill station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.11	Develop a treatment plan and prescribe appropriate drugs including fluids in cardiac diseases, anti -failure drugs, and inotropic agents	S	SH	Y	Bedside clinics, Skills lab	log book			
PE23.12	Interpret a chest X ray and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.13	Choose and Interpret blood reports in Cardiac illness	S	P	Y	Bedside clinics, Small group discussion	Log book entry			
PE23.14	Interpret Pediatric ECG	S	SH	Y	Bedside clinics, Skills lab	Log book entry			
PE23.15	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE23.16	Discuss the indications and limitations of Cardiac catheterization	K	K	N	Small group discussion	Viva voce			
PE23.17	Enumerate some common cardiac surgeries like BT shunt, Potts and Waterston's and corrective surgeries	K	K	N	Small group discussion	Viva voce			
PE23.18	Demonstrate empathy while dealing with children with cardiac diseases in every patient encounter	A	SH	Y	Small group discussion	Document in Log Book		AETCOM	
Topic:Diarrhoeal diseases and Dehydration		Number of competencies: (17)			Number of procedures that require certification:(03)				
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.3	Discuss the physiological basis of ORT, types of ORS and the composition of various types of ORS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.4	Discuss the types of fluid used in Paediatric diarrheal diseases and their composition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti-emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.7	Discuss the causes, clinical presentation and management of chronic diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.9	Elicit, document and present history pertaining to diarrheal diseases	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.10	Assess for signs of dehydration, document and present	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.11	Apply the IMNCI guidelines in risk stratification of children with diarrheal dehydration and refer	S	SH	Y	Bedside clinics, Skills lab	Document in Log book			
PE24.12	Perform and interpret stool examination including Hanging Drop	S	SH	N	Bedside clinics, Skills lab	Log book		Microbiology	
PE24.13	Interpret RFT and electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Document in Log Book			
PE24.14	Plan fluid management as per the WHO criteria	S	SH	Y	Bedside clinics, Small group activity	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.15	Perform NG tube insertion in a manikin	S	P	Y	DOAP session	Document in Log book	2		
PE24.16	Perform IV cannulation in a model	S	P	Y	DOAP session	Document in Log book	2		
PE24.17	Perform Interosseous insertion model	S	P	Y	DOAP session	Document in Log book	2		
Topic: Malabsorption		Number of competencies: (01)			Number of procedures that require certification:(NIL)				
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in Children and its causes including celiac disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Topic: Acute and chronic liver disorders		Number of competencies: (13)			Number of procedures that require certification: (NIL)				
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.5	Elicit document and present the history related to diseases of Gastrointestinal system	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE26.6	Identify external markers for GI and Liver disorders e.g.. Jaundice, Pallor, Gynaecomastia, Spider angioma, Palmar erythema, Icthyosis, Caput medusa, Clubbing, Failing to thrive, Vitamin A and D deficiency	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE26.7	Perform examination of the abdomen, demonstrate organomegaly, ascites etc.	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE26.8	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE26.10	Demonstrate the technique of liver biopsy in a Perform Liver Biopsy in a simulated environment	S	SH	Y	DOAP session	Document in log book			
PE26.11	Enumerate the indications for Upper GI endoscopy	K	K	N	Small group discussion	Viva voce			
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Microbiology	
PE26.13	Counsel and educate patients and their family appropriately on liver diseases	A/C	P	y	Bedside clinics, Skills lab	Document in log book			
Topic: Pediatric Emergencies – Common Pediatric Emergencies Number of competencies: (35) Number of procedures that require certification:(10)									
PE27.1	List the common causes of morbidity and mortality in the under five children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.2	Describe the etio-pathogenesis, clinical approach and management of cardiorespiratory arrest in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.3	Describe the etio-pathogenesis of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.4	Describe the clinical approach and management of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.5	Describe the etio-pathogenesis, clinical approach and management of Shock in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.6	Describe the etio-pathogenesis, clinical approach and management of Status epilepticus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.7	Describe the etio-pathogenesis, clinical approach and management of an unconscious child	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.8	Discuss the common types, clinical presentations and management of poisoning in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.9	Discuss oxygen therapy, in Pediatric emergencies and modes of administration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.10	Observe the various methods of administering Oxygen	S	KH	Y	Demonstration	Document in log book			
PE27.11	Explain the need and process of triage of sick children brought to health facility	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.12	Enumerate emergency signs and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.13	List the sequential approach of assessment of emergency and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.14	Assess emergency signs and prioritize	S	SH	Y	DOAP session, Skills lab	Skills Assessment			
PE27.15	Assess airway and breathing: recognise signs of severe respiratory distress. Check for cyanosis, severe chest indrawing, grunting	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.16	Assess airway and breathing. Demonstrate the method of positioning of an infant & child to open airway in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.17	Assess airway and breathing: administer oxygen using correct technique and appropriate flow rate	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.18	Assess airway and breathing: perform assisted ventilation by Bag and mask in a simulated environment	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		
PE27.19	Check for signs of shock i.e. pulse, Blood pressure, CRT	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.20	Secure an IV access in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PF27.21	Choose the type of fluid and calculate the fluid requirement in shock	S	P	Y	DOAP session, Small group activity	Skills Assessment	3		
PE27.22	Assess level of consciousness & provide emergency treatment to a child with convulsions/ coma - Position an unconscious child - Position a child with suspected trauma - Administer IV/per rectal Diazepam for a convulsing child in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.23	Assess for signs of severe dehydration	S	P	Y	Bedside clinics, Skills lab	Skill station	3		
PE27.24	Monitoring and maintaining temperature: define hypothermia. Describe the clinical features, complications and management of Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.26	Describe the environmental measures to maintain temperature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.27	Assess for hypothermia and maintain temperature	S	SH	Y	Skills lab	Skills Assessment			
PE27.28	Provide BLS for children in manikin	S	P	Y	Skills Lab		3		
PE.27.29	Discuss the common causes, clinical presentation, medico-legal implications of abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.30	Demonstrate confidentiality with regard to abuse	A	SH	Y	Skills lab, standardized patients	Skills Station			
PE27.31	Assess child for signs of abuse	S	SH	Y	DOAP session, Skills lab	Log book			
PE27.32	Counsel parents of dangerously ill / terminally ill child to break a bad news	S	SH	Y	DOAP session	Document in Log book			
PE27.33	Obtain Informed Consent	S	SH	Y	DOAP session	Document in Log book			
PE27.34	Willing to be a part of the ER team	A	SH	Y	DOAP session	Document in Log book			
PE27.35	Attends to emergency calls promptly	A	SH	Y	DOAP session	Document in Log Book			
Topic: Respiratory system		Number of competencies: (20)			Number of procedures that require certification: (NIL)				
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.12	Perform examination of the nose	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.13	Analyse the clinical symptoms and interpret physical findings and make a provisional / differential diagnosis in a child with ENT symptoms	S	SH	Y	Bedside clinics	Skills Assessment			
PE28.14	Develop a treatment plan and document appropriately in a child with upper respiratory symptoms	S	SH	Y	Bedside clinics	Skills Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.15	Stratify risk in children with stridor using IMNCI guidelines	S	SH	Y	Bedside clinics	Log book documentation			
PE28.16	Interpret blood tests relevant to upper respiratory problems	S	SH	N	Bedside clinics, Small group discussion	Log book			
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	SH	Y	Bedside clinics, Small group discussion	Skills Assessment		ENT, Radiodiagnosis	
PE28.18	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of lower respiratory infections including bronchiolitis, wheeze associated LRTI Pneumonia and empyema	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce			
PE28.19	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce		Respiratory Medicine	
Topic: Anemia and other Hemato-oncologic disorders in children Number of competencies: (20) Number of procedures that require certification: (NIL)									
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.5	Discuss the National Anaemia Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.10	Elicit, document and present the history related to Hematology	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE29.11	Identify external markers for hematological disorders e.g.. Jaundice, Pallor, Petechiae purpura, Ecchymosis, Lymphadenopathy, bone tenderness, loss of weight, Mucosal and large joint bleed	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.12	Perform examination of the abdomen, demonstrate organomegaly	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.13	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill assessment			
PE29.14	Interpret CBC, LFT	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.15	Perform and interpret peripheral smear	S	SH	Y	DOAP session	Document in log book			
PE29.16	Discuss the indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE29.17	Demonstrate performance of bone marrow aspiration in manikin	S	SH	Y	Skills lab	Document in log Book			
PE29.18	Enumerate the referral criteria for Hematological conditions	S	SH	Y	Bedside clinics, Small group activity	Viva voce			
PE29.19	Counsel and educate patients about prevention and treatment of anemia	A/C	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE29.20	Enumerate the indications for splenectomy and precautions	K	K	N	Small group Activity	Viva voce			
Topic: Systemic Pediatrics-Central Nervous system		Number of competencis: (23)			Number of procedures that require certification:(NIL)				
PE30.1	Discuss the etio-pathogenesis, clinical features , complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.3	Discuss the etio-pathogenesis, classification, clinical features, complication and management of Hydrocephalus in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.4	Discuss the etio-pathogenesis, classification, clinical features, and management of Microcephaly in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.5	Enumerate the Neural tube defects. Discuss the causes, clinical features, types, and management of Neural Tube defect	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.6	Discuss the etio-pathogenesis, clinical features, and management of Infantile hemiplegia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.7	Discuss the etio-pathogenesis, clinical features, complications and management of Febrile seizures in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.8	Define epilepsy. Discuss the pathogenesis, clinical types, presentation and management of Epilepsy in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.9	Define status Epilepticus. Discuss the clinical presentation and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.10	Discuss the etio-pathogenesis, clinical features and management of Mental retardation in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.11	Discuss the etio-pathogenesis, clinical features and management of children with cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.12	Enumerate the causes of floppiness in an infant and discuss the clinical features, differential diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.14	Discuss the etio-pathogenesis, clinical features and management of Duchene muscular dystrophy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.15	Discuss the etio-pathogenesis, clinical features and management of Ataxia in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.16	Discuss the approach to and management of a child with headache	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.17	Elicit document and present an age appropriate history pertaining to the CNS	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.18	Demonstrate the correct method for physical examination of CNS including identification of external markers. Document and present clinical findings	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.19	Analyse symptoms and interpret physical findings and propose a provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.20	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	
PE30.21	Enumerate the indication and discuss the limitations of EEG, CT, MRI	K	K	N	Bedside clinics	Log book			
PE30.22	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE30.23	Perform in a mannequin lumbar puncture. Discuss the indications, contraindication of the procedure	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			

Topic: Allergic Rhinitis , Atopic Dermatitis, Bronchial Asthma , Urticaria Angioedema

Number of competencies: (12)

Number of procedures that require certification: (NIL)

PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE31.2	Recognize the clinical signs of Allergic Rhinitis	S	SH	Y	Bedside clinics' Skill Lab	Skill Assessment		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics Skills lab	Skill Assessment		Dermatology, Venereology & Leprosy	
PE31.5	Discuss the etio-pathogenesis, clinical types, presentations, management and prevention of childhood Asthma	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			
PE31.6	Recognise symptoms and signs of Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.7	Develop a treatment plan for Asthma appropriate to clinical presentation & severity	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.8	Enumerate criteria for referral	K	KH	Y	Bedside clinic, Small group activity	Written/ Viva voce			
PE31.9	Interpret CBC and CX Ray in Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.10	Enumerate the indications for PFT	K	K	N	Bedside clinic, Small group activity	Viva voce			
PE31.11	Observe administration of Nebulisation	S	SH	Y	DOAP session	Document in log book			
PE31.12	Discuss the etio-pathogenesis, clinical features and complications and management of Urticaria Angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Chromosomal Abnormalities		Number of competencies: (13)			Number of procedures that require certification: (NIL)				
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.2	Identify the clinical features of Down's Syndrome	S	SH	Y	Bedside clinics, Skills lab	log book		General Medicine	
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.4	Discuss the referral criteria and Multidisciplinary approach to management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE32.5	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Obstetrics & Gynaecology	
PE32.7	Identify the clinical features of Turner Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bedside clinics, Skills lab	log book		General Medicine, Obstetrics & Gynaecology	
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.10	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.11	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Klinefelter Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.12	Identify the clinical features of Klinefelter Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.13	Interpret normal Karyotype and recognize the Klinefelter Karyotype	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
Topic: Endocrinology Number of competencies: (11) Number of procedures that require certification: (02)									
PE33.1	Describe the etio-pathogenesis clinical features, management of Hypothyroidism in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE33.2	Recognize the clinical signs of Hypothyroidism and refer	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			
PE33.3	Interpret and explain neonatal thyroid screening report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE33.4	Discuss the etio-pathogenesis, clinical types, presentations, complication and management of Diabetes mellitus in children	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce			
PE33.5	Interpret Blood sugar reports and explain the diagnostic criteria for Type 1 Diabetes	S	SH	Y	Bedside clinic, small group activity	Skill Assessment			
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill Assessment	3	Biochemistry	
PE33.7	Perform genital examination and recognize Ambiguous Genitalia and refer appropriately	S	SH	Y	Bedside clinic Skills lab	Skill Assessment			
PE33.8	Define precocious and delayed Puberty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE33.9	Perform Sexual Maturity Rating (SMR) and interpret	S	SH	Y	Bedside clinics Skills Lab	Skill Assessment			
PE33.10	Recognize precocious and delayed Puberty and refer	S	SH	Y	Bedside clinics Skills Lab	log book			
PE33.11	Identify deviations in growth and plan appropriate referral	S	P	Y	Bedside clinics Skills Lab	log book	2		
Topic:Vaccine preventable Diseases - Tuberculosis Number of competencies: (20) Number of procedures that require certification: (03)									
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bedside clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bedside clinics, Small group discussion	log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism e.g. Gastric Aspirate, Sputum , CSF, FNAC	K	KH	Y	Bedside clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.13	Enumerate the newer diagnostic tools for Tuberculosis including BACTEC CBNAAT and their indications	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE34.14	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.15	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with exanthematous illnesses like Measles, Mumps, Rubella & Chicken pox	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.16	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Diphtheria, Pertussis, Tetanus.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.17	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Typhoid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.18	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Dengue, Chikungunya and other vector born diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.19	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of children with Common Parasitic infections, malaria, leishmaniasis, filariasis, helminthic infestations, amebiasis, giardiasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.20	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Rickettsial diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: The role of the physician in the community		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
PE35.1	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to health care in children (including parental rights and right to refuse treatment)	K	KH	Y	Small group discussion	Written/ Viva voce			
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH- Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Human Anatomy									
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2)ventricular septal defect , 3)Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	Lecture	Written		Pediatrics	
AN75.3	Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome	K	KH	N	Lecture	Written		Pediatrics	
AN75.4	Describe genetic basis of variation; polymorphism and mutation	K	KH	Y	Lecture	Written		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
Physiology									
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PY11.9	Interpret growth charts	K	KH	Y	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	Y	Small group teaching	Practical/OSPE/Viva voce		Pediatrics	
Biochemistry									
BI5.3	Describe the digestion and absorption of dietary proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables. (macro-molecules & its importance)	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and hemophilias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.12	Define, classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Microbiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pharmacology, General Medicine	
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM6.1	Formulate a research question for a study	K	KH	Y	Small group, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pediatrics	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Paediatrics	
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussions, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Dermatology, Venereology & Leprosy									
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
DR6.1	Describe the etiology, pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR7.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Anesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
Psychiatry									
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
Obstetrics & Gynecology									
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Physical Medicine & Rehabilitation									
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
PM3.2	Recognize, describe and discuss the spectrum of multiple disability : cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize, describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity, rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

PSYCHIATRY (CODE: PS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PSYCHIATRY									
Topic: Doctor patient relationship		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
PS1.1	Establish rapport and empathy with patients	A/C	SH	Y	DOAP session	Skill station			
PS1.2	Describe the components of communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS1.3	Demonstrate breaking of bad news in a simulated environment	A/C	SH	Y	DOAP session	Skill station			
PS1.4	Describe and demonstrate the importance of confidentiality in patient encounters	A/C	SH	Y	DOAP session	Faculty observation			
Topic: Mental health		Number of competencies: (05)			Number of procedures that require certification:(NIL)				
PS2.1	Define stress and describe its components and causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.2	Describe the role of time management, study skills, balanced diet and sleep wake habits in stress avoidance	K	KH	Y	Lecture, Small group discussion	Viva voce			
PS2.3	Define and describe the principles and components of learning memory and emotions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.4	Describe the principles of personality development and motivation	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.5	Define and distinguish normality and abnormality	K	K	Y	Lecture, Small group discussion	Viva voce			
Topic: Introduction to psychiatry		Number of competencies: (12)			Number of procedures that require certification: (NIL)				
PS3.1	Describe the growth of psychiatry as a medical specialty, its history and contribution to society	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS3.2	Enumerate, describe and discuss important signs & symptoms of common mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.3	Elicit, present and document a history in patients presenting with a mental disorder	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.4	Describe the importance of establishing rapport with patients	S/A	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Faculty observation			
PS3.5	Perform, demonstrate and document a minimal examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.6	Describe and discuss biological, psychological & social factors & their interactions in the causation of mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.9	Describe the steps and demonstrate in a simulated environment family education in patients with organic psychiatric disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.10	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.11	Enumerate the appropriate conditions for specialist referral in patients with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.12	Describe, discuss and distinguish psychotic & non-psychotic (Mood, Anxiety, Stress related) disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.5	Demonstrate family education in a patient with alcohol and substance abuse in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		AETCOM	
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.7	Enumerate the appropriate conditions for specialist referral in patients with alcohol and substance abuse disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
PS5.1	Classify and describe the magnitude and etiology of schizophrenia & other psychotic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS5.2	Enumerate, elicit, describe and document clinical features, positive s	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.4	Demonstrate family education in a patient with schizophrenia in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.6	Enumerate the appropriate conditions for specialist referral in patients with psychotic disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Depression		Number of competencies: (07)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS6.1	Classify and describe the magnitude and etiology of depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS6.2	Enumerate, elicit, describe and document clinical features in patients with depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.3	Enumerate and describe the indications and interpret laboratory and other tests used in depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.5	Demonstrate family education in a patient with depression in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.7	Enumerate the appropriate conditions for specialist referral in patients with depression	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Bipolar disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS7.1	Classify and describe the magnitude and etiology of bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS7.2	Enumerate, elicit, describe and document clinical features in patients with bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.3	Enumerate and describe the indications and interpret laboratory and other tests used in bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.5	Demonstrate family education in a patient with bipolar disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS7.7	Enumerate the appropriate conditions for specialist referral in patients with bipolar disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anxiety disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS8.1	Enumerate and describe the magnitude and etiology of anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS8.2	Enumerate, elicit, describe and document clinical features in patients with anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.3	Enumerate and describe the indications and interpret laboratory and other tests used in anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.5	Demonstrate family education in a patient with anxiety disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.7	Enumerate the appropriate conditions for specialist referral in anxiety disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Stress related disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS9.1	Enumerate and describe the magnitude and etiology of stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.2	Enumerate, elicit, describe and document clinical features in patients with stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.3	Enumerate and describe the indications and interpret laboratory and other tests used in stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.4	Describe the treatment of stress related disorders including behavioural and psychosocial therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.5	Demonstrate family education in a patient with stress related disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS9.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.7	Enumerate the appropriate conditions for specialist referral in stress disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Somatoform disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.5	Demonstrate family education in a patient with somatoform, dissociative and conversion disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.7	Enumerate the appropriate conditions for specialist referral in patients with somato form dissociative and conversion disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Personality disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS11.1	Enumerate and describe the magnitude and etiology of personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS11.2	Enumerate, elicit, describe and document clinical features in patients with personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS11.3	Enumerate and describe the indications and interpret laboratory and other tests used in personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.5	Demonstrate family education in a patient with personality disorders in a simulated environment	S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychosomatic disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.5	Demonstrate family education in a patient with psychosomatic disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Psychosexual and gender identity disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS13.1	Enumerate and describe the magnitude and etiology of psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.3	Enumerate and describe the indications and interpret laboratory and other tests used in psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.5	Demonstrate family education in a patient with psychosexual and gender identity disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric disorders in childhood and adolescence		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.6	Enumerate the appropriate conditions for specialist referral in children and adolescents with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Mental retardation Number of competencies: (04) Number of procedures that require certification: (NIL)									
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Psychiatric disorders in the elderly Number of competencies: (05) Number of procedures that require certification: (NIL)									
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		General Medicine	
PS16.5	Enumerate the appropriate conditions for specialist referral in psychiatric disorders in the elderly	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric emergencies		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
PS17.1	Enumerate and describe the recognition and clinical presentation of psychiatric emergencies (Suicide, Deliberate Self Harm, Violent behaviour)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.2	Describe the initial stabilisation and management of psychiatric emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.3	Enumerate the appropriate conditions for specialist referral in patients with psychiatric emergencies	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Therapeutics		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharamcology	
PS18.2	Enumerate the indications for modified electroconvulsive therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS18.3	Enumerate and describe the principles and role of psychosocial interventions in psychiatric illness including psychotherapy, behavioural therapy and rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS19.2	Describe the objectives strategies and contents of the National Mental Health Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine & Toxicology, AETCOM	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.6	Enumerate and describe the identifying features and the principles of participatory management of mental illness occurring during and after disasters	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									

Integration

Physiology									
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
Pharmacology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, antimaniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake. Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Psychiatry	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/ S	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	Short note/Viva voce		Psychiatry	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs.	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
Community Medicine									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.17	Describe and discuss the sexual perversions fetichism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
General Medicine									
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Pediatrics									
PE1.2	Discuss and describe the patterns of growth in infants, children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.5	Define development and discuss the normal developmental milestones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.5	Describe the clinical features, diagnosis and management of Temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.10	Discuss the role of child guidance clinic in children with Behavioral problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.2	Describe the physical , physiological and psychological changes during Adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE6.4	Describe Adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.6	Discuss the common Adolescent Eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during Adolescence	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			Psychiatry
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Physical Medicine & Rehabilitation									
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
Dermatology, Venereology & Leprosy									
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
Forensic Medicine & Toxicology									
FM2.5	Discuss moment of death, modes of death- coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Pathology
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	

DERMATOLOGY, VENEROLOGY AND LEPROSY (CODE: DR)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
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DERMATOLOGY, VENEREOLOGY & LEPROSY

Topic: Acne		Number of competencies:(03)			Number of procedures that require certificaion:(NIL)				
DR1.1	Enumerate the causative and risk factors of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
DR1.2	Identify and grade the various common types of acne	S	SH	Y	Bedside clinic	Skill assessment			
DR1.3	Describe the treatment and preventive measures for various kinds of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vitiligo		Number of competencies: (02)			Number of procedures that require certificaion:(NIL)				
DR2.1	Identify and differentiate vitiligo from other causes of hypopigmented lesions	S	S	Y	Bedside clinic	Skill assessment			
DR2.2	Describe the treatment of vitiligo	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Papulosquamous disorders		Number of competencies:(03)			Number of procedures that require certificaion:(NIL)				
DR3.1	Identify and distinguish psoriatic lesions from other causes	K	SH	Y	Bedside clinic	Skill assessment/ Written/ Viva voce			
DR3.2	Demonstrate the grattage test	S	SH	Y	Bedside clinic	Skill assessment			
DR3.3	Enumerate the indications for and describe the various modalities of treatment of psoriasis including topical, systemic and phototherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lichen Planus		Number of competencies:(02)			Number of procedures that require certificaion:(NIL)				
DR4.1	Identify and distinguish lichen planus lesions from other causes	S	SH	Y	Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR4.2	Enumerate and describe the treatment modalities for lichen planus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Scabies		Number of competencies:(03)			Number of procedures that require certificaion:(NIL)				
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
Topic: Pediculosis		Number of competencies : (02)			Number of procedures that require certificaion:(NIL)				
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
Topic: Fungal Infections		Number of competencies: (03)			Number of procedures that require certificaion:(NIL)				
DR7.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of dermatophytes in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify Candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pharmacology
Topic: Viral infections		Number of competencies (07)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.2	Identify and distinguish herpes simplex and herpes labialis from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.3	Identify and distinguish herpes zoster and varicella from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.4	Identify and distinguish viral warts from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.5	Identify and distinguish molluscum contagiosum from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.6	Enumerate the indications, describe the procedure and perform a Tzanck smear	S	SH	Y	DOAP session	Skill assessment			
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology

Topic: Leprosy

Number of competencies: (07)

Number of procedures that require certification:(NIL)

DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Bedside clinic	Bedside clinic/ Skill assessment		General Medicine	
DR9.3	Enumerate the indications and observe the performance of a slit skin smear in patients with leprosy	S	KH	Y	Bedside clinic, DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Psychiatry
Topic: Sexually Transmitted Diseases Number of competencies: (11) Number of procedures that require certification:(NIL)									
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted disease	C	SH	Y	DOAP session	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non-gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: HIV		Number of competencies: (03)			Number of procedures that require certification:(NIL)				
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV, its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
Topic: Dermatitis and Eczema		Number of competencies: (07)			Number of procedures that require certification:(NIL)				
DR12.1	Describe the aetiopathogenesis of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR12.2	Identify eczema and differentiate it from lichenification and changes of aging	S	SH	Y	Bedside clinic	Skill assessment			
DR12.3	Classify and grade eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.4	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the treatment of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.5	Define erythroderma. Enumerate and identify the causes of erythroderma. Discuss the treatment	S	KH	Y	Bedside clinic	Written/ Skill assessment			
DR12.6	Identify and distinguish exfoliative dermatitis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
Topic: Vesicubullous Lesions Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR13.1	Distinguish bulla from vesicles	S	SH	Y	Bedside clinic	Skill assessment			
DR13.2	Demonstrate the Tzanck test, nikolsky sign and bulla spread sign	S	SH	Y	Bedside clinic	Skill assessment			
DR13.3	Calculate the body surface area of involvement of vesiculobullous lesions	S	SH	Y	Bedside clinic	Skill assessment			
Topic: Urticaria Angioedema Number of competencies: (05) Number of procedures that require certificaion:(NIL)									
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR14.2	Identify and distinguish urticarial from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.3	Demonstrate dermographism	S	SH	Y	Bedside clinic	Skill assessment			
DR14.4	Identify and distinguish angioedema from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
Topic: Pyoderma		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
DR15.1	Identify and distinguish folliculitis impetigo and carbuncle from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/ Viva voce		General Surgery	
Topic: Collagen Vascular disease		Number of competencies: (02)			Number of procedures that require certification:(NIL)				
See also major competencies listed in General Medicine									
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology
Topic: Nutritional Deficiencies and Skin		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
Topic: Systemic diseases and the skin		Number of competencies:(02)			Number of procedures that require certification:(NIL)				
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo/hyper-thyroidism	K	K	Y	Lecture, Small group	Written/ Viva voce		General Medicine	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	

Pathology

PA34.1	Describe the risk factors, pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors, pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors, morphology, clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	

Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI4.3	Describe the etio-pathogenesis of Skin and soft tissue infections and discuss the clinical course, and the laboratory diagnosis.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures, wherever relevant.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics & Gynaecology	

Pharmacology

PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	

Pediatrics

PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics, Skill Lab	Skill Assessment		Dermatology, Venereology & Leprosy	
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PHYSICAL MEDICINE & REHABILITATION (CODE: PM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSICAL MEDICINE & REHABILITATION									
Topic: Introduction to Physical Medicine		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM1.1	Define and describe the scope of physical Medicine and Rehabilitation and functional restoration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
Topic: Cerebrovascular accident		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of co-morbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Cerebral Palsy		Number ocompetencies: (07)			Number of procedures that require certification: (NIL)				
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.2	Recognize, Describe and discuss the spectrum of multiple disability: cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Topic: Musculoskeletal system

Number of competencies : (05)

Number of procedures that require certification: (NIL)

PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.4	Describe the role of exercise as a therapeutic modality	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine, Orthopedics
Topic: Amputation Number of competencies : (04) Number of procedures that require certification: (NIL)									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment written			Orthopedics
Topic: Lower motor neuron lesion Number of competencies :(04) Number of procedures that require certification: (NIL)									
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM6.3	Describe the principles principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
Topic: Spinal injury Number of competencies:(09) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.1	Describe and discuss the clinical features, diagnostic work up and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, application of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment /Viva voce			Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.8	Enumerate the causes of, describe and classify Pressure Sores, their prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery

Topic: Traumatic brain injury (TBI)

Number of competencies:(05)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Geriatrics		Number of competencies:(01)			Number of procedures that require certification: (NIL)				
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									

Integration

General Medicine									
IM18.16	Enumerate the indications, describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM24.13	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Pediatrics

PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group discussion, Bed side clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

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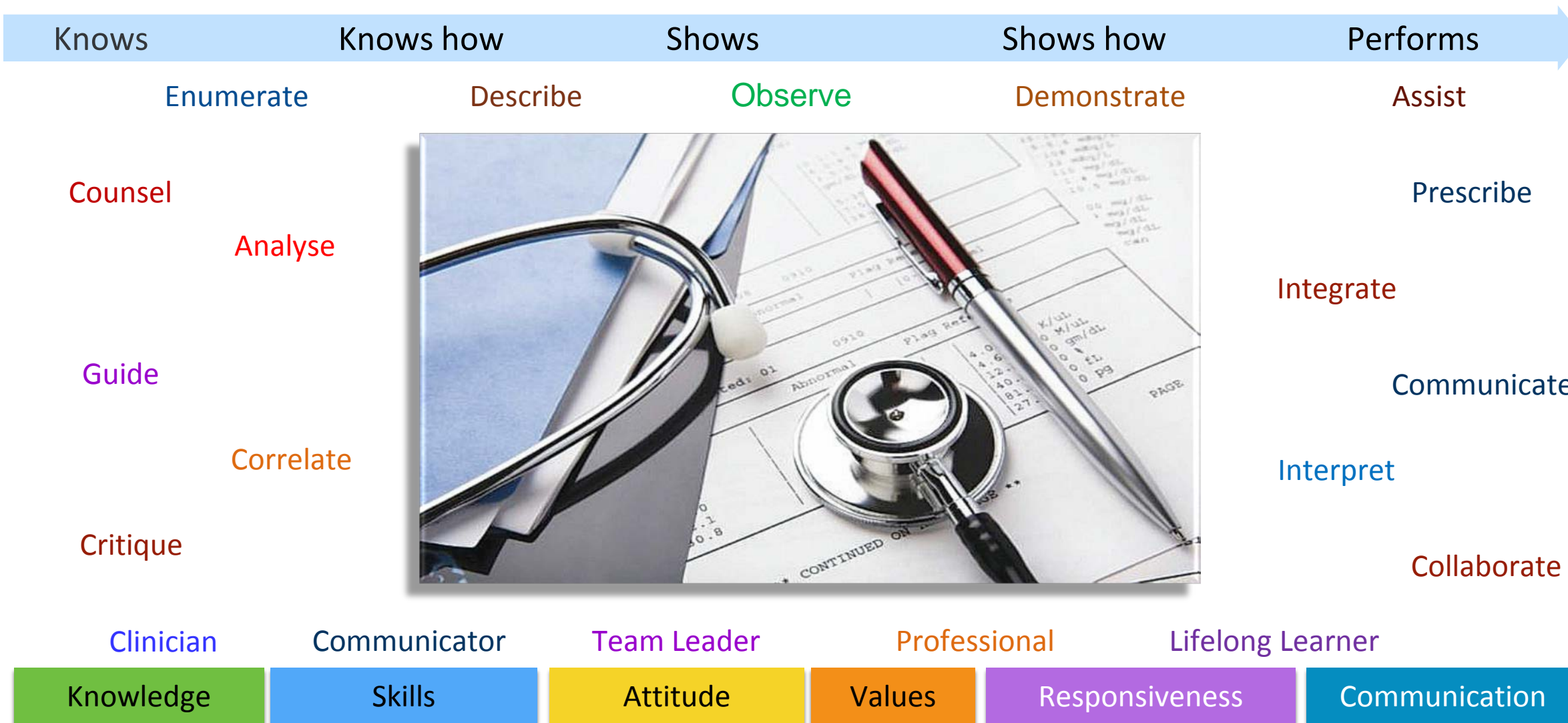
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MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-III (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE**

2018



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to 'perform' these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a "living document" that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2.3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary									
Name of Topic: General Physiology									
Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM15.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Description of competency

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
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PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
---------	---	-----	----	---

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture → small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately	
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y
---------	---	-----	----	---

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase I Phase II student must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology
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Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

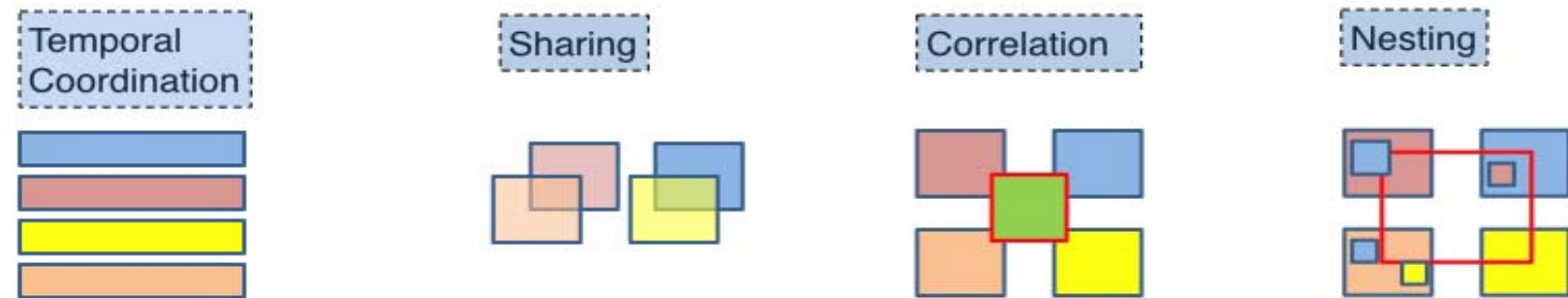


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

1. **Goal:** A projected state of affairs that a person or system plans to achieve.

In other words: Where do you want to go? or What do you want to become?

2. **Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.

In other words: What should you have? or What should have changed?

3. **Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.

In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word 'perform' or 'do' is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume III

Competency based Undergraduate Curriculum

in

Surgery and Allied subjects

GENERAL SURGERY (CODE: SU)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL SURGERY									
Topic: Metabolic response to injury		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Biochemistry	
SU1.3	Describe basic concepts of perioperative care.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce			
Topic: Shock		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU2.2	Describe the clinical features of shock and its appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	A/C	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Blood and blood components		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU3.2	Observe blood transfusions.	S	SH	Y	Small group discussion, DOAP session	Skills assessment/ Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	A/C	SH	Y	DOAP session	Skills assessment			
Topic: Burns		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU4.1	Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU4.2	Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.3	Discuss the Medicolegal aspects in burn injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.4	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	A /C	SH	Y	Small group discussion, Role play, Skills assessment	Viva voce			
Topic: Wound healing and wound care		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU5.2	Elicit, document and present a history in a patient presenting with wounds.	C	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.3	Differentiate the various types of wounds, plan and observe management of wounds.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.4	Discuss medico legal aspects of wounds	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Surgical infections Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU6.1	Define and describe the aetiology and pathogenesis of surgical Infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU6.2	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Surgical Audit and Research Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
Topic: Ethics Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU8.1	Describe the principles of Ethics as it pertains to General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment	-	Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico-legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
Topic: Investigation of surgical patient Number of competencies (03) Number of procedures that require certification: (NIL)									
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.6	Describe Principles of safe General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Nutrition and fluid therapy		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Biochemistry	
Topic: Transplantation		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU13.3	Discuss the legal and ethical issues concerning organ donation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
SU13.4	Counsel patients and relatives on organ donation in a simulated environment	S	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Basic Surgical Skills		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU14.1	Describe Aseptic techniques, sterilization and disinfection.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU14.2	Describe Surgical approaches, incisions and the use of appropriate instruments in Surgery in general.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.3	Describe the materials and methods used for surgical wound closure and anastomosis (sutures, knots and needles)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	S	SH	Y	DOAP session	Skill assessment/ Log book			
Topic: Biohazard disposal		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
SU15.1	Describe classification of hospital waste and appropriate methods of disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: Minimally invasive General Surgery		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
SU16.1	Minimally invasive General Surgery: Describe indications advantages and disadvantages of Minimally invasive General Surgery	K	K	Y	Lecture, Demonstration, Bedside clinic, Discussion	Theory/ Practical / Orals/Written/ Viva voce			
Topic: Trauma		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
SU17.1	Describe the Principles of FIRST AID	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anaesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU17.3	Describe the Principles in management of mass casualties	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.4	Describe Pathophysiology, mechanism of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.5	Describe clinical features for neurological assessment and GCS in head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.6	Chose appropriate investigations and discuss the principles of management of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.7	Describe the clinical features of soft tissue injuries. Chose appropriate investigations and discuss the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.8	Describe the pathophysiology of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.9	Describe the clinical features and principles of management of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	S	SH	Y	DOAP session	Skill assessment/ Log book			Anaesthesiology

Topic: Skin and subcutaneous tissue

Number of competencies: (03)

Number of procedures that require certification: (NIL)

SU18.1	Describe the pathogenesis, clinical features and management of various cutaneous and subcutaneous infections.	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce			
SU18.2	Classify skin tumors Differentiate different skin tumors and discuss their management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	S	SH	Y	Bedside clinic, Small group discussion, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Developmental anomalies of face, mouth and jaws		Number of competencies: (02)			Number of procedures that require certification: (NIL)				
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
Topic: Oropharyngeal cancer		Number of competencies: (02)			Number of procedures that require certification: (NIL)				
SU20.1	Describe etiopathogenesis of oral cancer symptoms and signs of oropharyngeal cancer.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
SU20.2	Enumerate the appropriate investigations and discuss the Principles of treatment.	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Disorders of salivary glands		Number of competencies: (02)			Number of procedures that require certification: (NIL)				
SU21.1	Describe surgical anatomy of the salivary glands, pathology, and clinical presentation of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU21.2	Enumerate the appropriate investigations and describe the Principles of treatment of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Endocrine General Surgery: Thyroid and parathyroid		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
SU22.1	Describe the applied anatomy and physiology of thyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discuss the differential diagnosis and their management	S	SH	Y	Bedside clinic	Skill assessment			
SU22.4	Describe the clinical features, classification and principles of management of thyroid cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU22.5	Describe the applied anatomy of parathyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.6	Describe and discuss the clinical features of hypo - and hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Adrenal glands Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.3	Describe the clinical features, principles of investigation and management of Adrenal tumors	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Pancreas		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU24.2	Describe the clinical features, principles of investigation, prognosis and management of pancreatic endocrine tumours	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU24.3	Describe the principles of investigation and management of Pancreatic disorders including pancreatitis and endocrine tumors.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Breast		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
SU25.1	Describe applied anatomy and appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU25.2	Describe the etiopathogenesis, clinical features and principles of management of benign breast disease including infections of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	A/ C	SH	Y	DOAP session	Skill assessment			
SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
Topic: Cardio-thoracic General Surgery- Chest - Heart and Lungs		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU26.1	Outline the role of surgery in the management of coronary heart disease, valvular heart diseases and congenital heart diseases	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU26.3	Describe the clinical features of mediastinal diseases and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU26.4	Describe the etiology, pathogenesis, clinical features of tumors of lung and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vascular diseases Number of competencies: (08) Number of procedures that require certification: (NIL)									
SU27.1	Describe the etiopathogenesis, clinical features, investigations and principles of treatment of occlusive arterial disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	S	SH	Y	DOAP session	Skill assessment			
SU27.3	Describe clinical features, investigations and principles of management of vasospastic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.4	Describe the types of gangrene and principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.5	Describe the applied anatomy of venous system of lower limb	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.6	Describe pathophysiology, clinical features, Investigations and principles of management of DVT and Varicose veins	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU27.7	Describe pathophysiology, clinical features, investigations and principles of management of Lymph edema, lymphangitis and Lymphomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.8	Demonstrate the correct examination of the lymphatic system	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Abdomen Number of competencies: (18) Number of procedures that require certification: (NIL)									
SU28.1	Describe pathophysiology, clinical features, Investigations and principles of management of Hernias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.3	Describe causes, clinical features, complications and principles of management of peritonitis	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce			
SU28.4	Describe pathophysiology, clinical features, investigations and principles of management of Intra-abdominal abscess, mesenteric cyst, and retroperitoneal tumors	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	
SU28.6	Describe the clinical features, investigations and principles of management of benign and malignant disorders of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.7	Describe the applied anatomy and physiology of stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU28.8	Describe and discuss the aetiology, the clinical features, investigations and principles of management of congenital hypertrophic pyloric stenosis, Peptic ulcer disease, Carcinoma stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.10	Describe the applied anatomy of liver. Describe the clinical features, Investigations and principles of management of liver abscess, hydatid disease, injuries and tumors of the liver	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.11	Describe the applied anatomy of spleen. Describe the clinical features, investigations and principles of management of splenic injuries. Describe the post-splenectomy sepsis - prophylaxis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestine	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.14	Describe the clinical features, investigations and principles of management of disorders of small and large intestine including neonatal obstruction and Short gut syndrome	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.15	Describe the clinical features, investigations and principles of management of diseases of Appendix including appendicitis and its complications.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU28.17	Describe the clinical features, investigations and principles of management of common anorectal diseases	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
Topic: Urinary System Number of competencies: (11) Number of procedures that require certification: (NIL)									
SU29.1	Describe the causes, investigations and principles of management of Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.2	Describe the clinical features, investigations and principles of management of congenital anomalies of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.4	Describe the clinical features, investigations and principles of management of hydronephrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.5	Describe the clinical features, investigations and principles of management of renal calculi	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.6	Describe the clinical features, investigations and principles of management of renal tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.7	Describe the principles of management of acute and chronic retention of urine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.8	Describe the clinical features, investigations and principles of management of bladder cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.9	Describe the clinical features, investigations and principles of management of disorders of prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
SU29.11	Describe clinical features, investigations and management of urethral strictures	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Penis, Testis and scrotum		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
SU30.1	Describe the clinical features, investigations and principles of management of phimosis, paraphimosis and carcinoma penis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.2	Describe the applied anatomy clinical features, investigations and principles of management of undescended testis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.3	Describe the applied anatomy clinical features, investigations and principles of management of epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.4	Describe the applied anatomy clinical features, investigations and principles of management of varicocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.6	Describe classification, clinical features, investigations and principles of management of tumours of testis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
<p>Column C: K- Knowledge, S – Skill , A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Human Anatomy									
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
AN9.2	Breast-Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/Viva voce		General Surgery	
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.9	Identify & demonstrate palpation of vessels (femoral, popliteal, dorsalis pedis, post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine General Surgery	
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations, tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN30.1	Describe the cranial fossae & identify related structures.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.5	Describe & demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & Accessory nerve	K/S	SH	N	Practical	Viva voce/ Skill assessment		General Surgery	
AN44.1	Describe & demonstrate the Planes (transpyloric, transtuberular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN46.4	Explain the anatomical basis of varicocele	K	KH	N	Lecture	Written		General Surgery	
AN46.5	Explain the anatomical basis of Phimosi s & Circumcision	K	KH	N	Lecture	Written		General Surgery	
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, accessory spleens, Kehr's sign, different types of vagotomy, liver biopsy (site of needle puncture), referred pain in cholecystitis, Obstructive jaundice, referred pain around umbilicus, radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	
AN47.11	Explain the anatomic basis of hematemesis & caput medusae in portal hypertension	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe neurological basis of automatic bladder	K	KH	N	Lecture	Written		General Surgery	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN52.5	Describe the development and congenital anomalies of diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of foregut, midgut & hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.7	Describe the development of urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN53.1	Identify & hold the bone in the anatomical position, describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		General Surgery, Obstetrics & Gynaecology	
AN55.1	Demonstrate the surface marking of regions and planes of abdomen, superficial inguinal ring, deep inguinal ring, McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: stomach, liver, fundus of gall bladder, spleen, duodenum, pancreas, ileocaecal junction, kidneys & root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
Biochemistry									
BI10.1	Describe the cancer initiation promotion oncogenes & oncogene activation.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
B110.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
B110.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique, stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.4	Describe and discuss the pathogenesis pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology and pathogenesis and pathologic and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.13	Define, classify and describe the etiology, pathogenesis, pathology, laboratory urinary findings, distinguishing features, progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, urologic findings and diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill assessment		General Surgery	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy , Physiology, General Medicine, Pathology	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Microbiology									
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE		General Surgery	
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
Community Medicine									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man-made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially --maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects.	K	KH	Y	Lectures, Small group discussion, Bed side clinic/ DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		General Surgery	
FM3.6	Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries: Describe different types of firearms including structure and components, along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries: Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
Dermatology, Venereology & Leprosy									
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/Viva voce		General Surgery	
Anesthesiology									
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in Surgery(including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
General Medicine									
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications of cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bed side clinic, Small group discussion	Written/ Viva voce		Radiodiagnosis	General Surgery
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites, spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo-and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce, Skill assessment		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.17	Describe and enumerate the indications for Surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM18.15	Enumerate the indications for Surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM19.9	Enumerate the indications for use of Surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
Obstetrics & Gynaecology									
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
OG33.2	Describe the principles of management including Surgery and radiotherapy of benign, pre-malignant (CIN) and malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
Pediatrics									
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract00	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis, pancreatitis perforation intussusception, Phimosis, undescended testis, Chordee, hypospadiasis, Torsion testis, hernia Hydrocele, Vulval Synechia	S	SH	Y	Bed side clinics, Skills lab	Log book assessment			General Surgery
Orthopedics									
OR1.1	Describe and discuss the principles of pre-hospital care and casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery - Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/ SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written Assesment/ Viva voce			General Surgery
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, Case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.8	Enumerate the causes of, describe, classify Pressure sores, prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
Radiotherapy									
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery Anaesthesiology
RT1.3	Enumerate, describe and discuss and classify staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bedside clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, Group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

OPHTHALMOLOGY (CODE: OP)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OPHTHALMOLOGY									
Topic: Visual Acuity Assessment		Number of Competencs: (05)			Number of procedures that require certification : (NIL)				
OP1.1	Describe the physiology of vision	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
OP1.2	Define, classify and describe the types and methods of correcting refractive errors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes	S	SH	Y	DOAP session, Lecture	Skill assessment/ Logbook			
OP1.4	Enumerate the indications and describe the principles of refractive surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.5	Define, enumerate the types and the mechanism by which strabismus leads to amblyopia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lids and Adnexa, Orbit		Number of Competencies: (08)			Number of procedures that require certification: (NIL)				
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP2.2	Demonstrate the symptoms & clinical signs of conditions enumerated in OP2.1	S	S	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP2.3	Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation	S	SH	Y	DOAP session, Lecture	Skill assessment			
OP2.4	Describe the aetiology, clinical presentation. Discuss the complications and management of orbital cellulitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.5	Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.6	Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.7	Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.8	List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Conjunctiva Number of Competencies (09) Number of procedures that require certification: (NIL)									
OP3.1	Elicit document and present an appropriate history in a patient presenting with a "red eye" including congestion, discharge, pain	S	SH	Y	DOAP session	Skill Assessment			
OP3.2	Demonstrate document and present the correct method of examination of a "red eye" including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness	S	SH	Y	DOAP session	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP3.3	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.4	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.5	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.6	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.7	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.8	Demonstrate correct technique of removal of foreign body from the eye in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Corneas		Number of Competencies: (10)			Number of procedures that require certification: (NIL)				
OP4.1	Enumerate, describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.2	Enumerate and discuss the differential diagnosis of infective keratitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP4.3	Enumerate the causes of corneal edema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.4	Enumerate the causes and discuss the management of dry eye	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.5	Enumerate the causes of corneal blindness	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.6	Enumerate the indications and the types of keratoplasty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.7	Enumerate the indications and describe the methods of tarsorrhaphy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.8	Demonstrate technique of removal of foreign body in the cornea in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP4.9	Describe and discuss the importance and protocols involved in eye donation and eye banking	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.10	Counsel patients and family about eye donation in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Sclera		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OP5.1	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of episcleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Iris and Anterior chamber Number of Competencies (10) Number of procedures that require certification: (NIL)									
OP6.1	Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.2	Identify and distinguish acute iridocyclitis from chronic iridocyclitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
OP6.4	Describe and distinguish hyphema and hypopyon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.5	Describe and discuss the angle of the anterior chamber and its clinical correlates	K	KH		Lecture, Small group discussion	Written/ Viva voce			
OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of shallow and deep anterior chamber. Choose appropriate investigations for patients with above conditions of the anterior chamber	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.8	Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP6.9	Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.10	Counsel patients with conditions of the iris and anterior chamber about their diagnosis, therapy and prognosis in an empathetic manner in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Lens Number of Competencies: (06) Number of procedures that require certification: (NIL)									
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP7.3	Demonstrate the correct technique of ocular examination in a patient with a cataract	S	SH	Y	DOAP session	Skill assessment			
OP7.4	Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	S	KH	Y	DOAP session, Lecture, Small group discussion	Written/ Viva voce			
OP7.5	To participate in the team for cataract surgery	S	SH	Y	DOAP session	Skill assessment/ Logbook documentation			
OP7.6	Administer informed consent and counsel patients for cataract surgery in a simulated environment	S	SH	Y	DOAP session	Skill Assessment			
Topic: Retina & optic Nerve Number of Competencies (05) Number of procedures that require certification : (NIL)									
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP8.2	Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.3	Demonstrate the correct technique of a fundus examination and describe and distinguish the fundoscopic features in a normal condition and in conditions causing an abnormal retinal exam	S	SH	Y	Lecture, Small group discussion	Skill Assessment			
OP8.4	Enumerate and discuss treatment modalities in management of diseases of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.5	Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous Number of Competencies (05) Number of procedures that require certification: (01)									
OP9.1	Demonstrate the correct technique to examine extra ocular movements (Unioocular & Binocular)	S	P	Y	DOAP session	Skill Assessment	5		
OP9.2	Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment			
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
OP9.5	Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
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Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Human Anatomy

AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	

Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colour blindness, Physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/viva		Ophthalmology	
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/ viva		Ophthalmology	
PY10.20	Demonstrate testing of visual acuity, colour and field of vision in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1	ENT, Ophthalmology	
Pathology									
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
Pharmacology									
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
General Medicine									
IM24.15	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

OTORHINOLARYNGOLOGY (ENT) (CODE: EN)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OTORHINOLARYNGOLOGY (ENT)									
Topic: Anatomy and Physiology of ear, nose, throat, head & neck		Number of competencies:(02)			Number of procedures that require certification:(NIL)				
EN1.1	Describe the Anatomy & physiology of ear, nose, throat, head & neck	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Pathology	
Topic: Clinical Skills		Number of competencies: (15)			Number of procedures that require certification : (NIL)				
EN2.1	Elicit document and present an appropriate history in a patient presenting with an ENT complaint	K/S/A/C	SH	Y	Lecture, Small group discussion, Demonstration	Skill assessment			
EN2.2	Demonstrate the correct use of a headlamp in the examination of the ear, nose and throat	S	SH	Y	DOAP session	Skill assessment/ OSCE			
EN2.3	Demonstrate the correct technique of examination of the ear including Otoscopy	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.4	Demonstrate the correct technique of performance and interpret tuning fork tests	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.5	Demonstrate the correct technique of examination of the nose & paranasal sinuses including the use of nasal speculum	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.6	Demonstrate the correct technique of examining the throat including the use of a tongue depressor	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.7	Demonstrate the correct technique of examination of neck including elicitation of laryngeal crepitus	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN2.8	Demonstrate the correct technique to perform and interpret pure tone audiogram & impedance audiogram	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.9	Choose correctly and interpret radiological, microbiological & histological investigations relevant to the ENT disorders	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment			
EN2.10	Identify and describe the use of common instruments used in ENT surgery	K	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.11	Describe and identify by clinical examination malignant & pre- malignant ENT diseases	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN2.12	Counsel and administer informed consent to patients and their families in a simulated environment	S/A/C	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.13	Identify, resuscitate and manage ENT emergencies in a simulated environment (including tracheostomy, anterior nasal packing, removal of foreign bodies in ear, nose, throat and upper respiratory tract)	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.14	Demonstrate the correct technique to instilling topical medications into the ear, nose and throat in a simulated environment	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.15	Describe the national programs for prevention of deafness, cancer, noise & environmental pollution	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Diagnostic and Therapeutic procedures in ENT		Number of competencies:(06)			Number of procedures that require certification:(NIL)				
EN3.1	Observe and describe the indications for and steps involved in the performance of Otomicroscopic examination in a simulated environment	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN3.2	Observe and describe the indications for and steps involved in the performance of diagnostic nasal Endoscopy	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.3	Observe and describe the indications for and steps involved in the performance of Rigid/Flexible Laryngoscopy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.4	Observe and describe the indications for and steps involved in the removal of foreign bodies from ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.5	Observe and describe the indications for and steps involved in the surgical procedures in ear, nose & throat	K	KH	N	Lecture, small group discussion, Demonstration	Written/ Viva voce			
EN3.6	Observe and describe the indications for and steps involved in the skills of emergency procedures in ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Management of diseases of ear, nose & throat Number of competencies: (53) Number of procedures that require certification : (NIL)									
EN4.1	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Otagia	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.2	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases of the external Ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.3	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of ASOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.4	Demonstrate the correct technique to hold visualize and assess the mobility of the tympanic membrane and its mobility and interpret and diagrammatically represent the findings	K/S/A	SH	Y	Clinical, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.5	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of OME	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.6	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Discharging ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.7	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.8	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.9	Demonstrate the correct technique for syringing wax from the ear in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
EN4.10	Observe and describe the indications for and steps involved in myringotomy and myringoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.11	Enumerate the indications describe the steps and observe a mastoidectomy	K/S	KH	Y	DOAP session	Written/ Viva voce			
EN4.12	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.13	Describe the clinical features, investigations and principles of management of Otosclerosis	K	KH	Y	Lecture, Small group discussion; Demonstration	Written/ Viva voce/ Skill assessment			
EN4.14	Describe the clinical features, investigations and principles of management of Sudden Sensorineural Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.15	Describe the clinical features, investigations and principles of management of Noise Induced Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.16	Observe and describe the indications for and steps involved in the performance of pure tone audiometry	S	KH	Y	DOAP session	Written/ Viva			
EN4.17	Enumerate the indications and interpret the results of an audiogram	S	SH	Y	DOAP session	Skill assessment			
EN4.18	Describe the clinical features, investigations and principles of management of Facial Nerve palsy	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.19	Describe the clinical features, investigations and principles of management of Vertigo	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.20	Describe the clinical features, investigations and principles of management of Meniere's Disease	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.21	Describe the clinical features, investigations and principles of management of Tinnitus	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.22	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Obstruction	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.23	Describe the clinical features, investigations and principles of management of DNS	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.24	Enumerate the indications observe and describe the steps in a septoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.25	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Polyps	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.26	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Adenoids	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.27	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Allergic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.28	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Vasomotor Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.29	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.30	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Epistaxis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.31	Describe the clinical features, investigations and principles of management of trauma to the face & neck	K/S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.32	Describe the clinical features, investigations and principles of management of nasopharyngeal Angiofibroma	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.33	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Sinusitis	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.34	Describe the clinical features, investigations and principles of management of Tumors of Maxilla	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.35	Describe the clinical features, investigations and principles of management of Tumors of Nasopharynx	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.36	Describe the clinical features, investigations and principles of management of diseases of the Salivary glands	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.37	Describe the clinical features, investigations and principles of management of Ludwig's angina	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.38	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of type of dysphagia	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.39	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Tonsillitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.40	Observe and describe the indications for and steps involved in a tonsillectomy / adenoidectomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.41	Describe the clinical features, investigations and principles of management of Acute & chronic abscesses in relation to Pharynx	K/S	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce			
EN4.42	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of hoarseness of voice	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.43	Describe the clinical features, investigations and principles of management of Acute & Chronic Laryngitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.44	Describe the clinical features, investigations and principles of management of Benign lesions of the vocal cord	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.45	Describe the clinical features, investigations and principles of management of Vocal cord palsy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.46	Describe the clinical features, investigations and principles of management of Malignancy of the Larynx & Hypopharynx	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.47	Describe the clinical features, investigations and principles of management of Stridor	K	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce/ Skill assessment			
EN4.48	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Airway Emergencies	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.49	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of foreign bodies in the air & food passages	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.50	Observe and describe the indications for and steps involved in tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.51	Observe and describe the care of the patient with a tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.52	Describe the Clinical features, Investigations and principles of management of diseases of Oesophagus	K	ENT	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.53	Describe the clinical features, investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									

Integration

Human Anatomy

AN36.1	Describe the (1) morphology, relations, blood supply and applied anatomy of palatine tonsil and (2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Physiology									
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.20	Demonstrate (i) hearing (ii) testing for smell and (iii) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each x 3	ENT, Ophthalmology	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution.	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		General Medicine, ENT	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
Pediatrics									
PE14.2	Discuss the risk factors, clinical features, Diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.12	Perform examination of the nose	S	P	Y	DOAP session	Skill Assessment		ENT	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management. Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
General Surgery									
SU20.1	Describe etiopathogenesis of oral cancer, symptoms and signs of pharyngeal cancer. Enumerate the appropriate investigations and discuss the principles of treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

OBSTETRICS & GYNECOLOGY (CODE: OG)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OBSTETRICS & GYNAECOLOGY									
Topic: Demographic and Vital Statistics		Number of competencies: (03)			Number of procedures that require certification : (NIL)				
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG1.3	Define and discuss still birth and abortion	K	KH	Y	Lecture, Small group discussion	Short notes		Forensic Medicine & Toxicology	
Topic: Anatomy of the female reproductive tract (Basic anatomy and embryology)		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Theory/ Skill station		Human Anatomy	
Topic: Physiology of conception		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis.	K	K	Y	Lecture, seminars	Theory		Physiology	
Topic: Development of the fetus and the placenta		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG4.1	Describe and discuss the basic embryology of fetus, factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Preconception counselling		Number of competencies:(02)			Number of procedures that require certification : (NIL)				
OG5.1	Describe, discuss and identify pre-existing medical disorders and discuss their management; discuss evidence-based intrapartum care	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
OG5.2	Determine maternal high risk factors and verify immunization status	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
Topic: Diagnosis of pregnancy		Number of competencies:(01)			Number of procedures that require certification : (NIL)				
OG6.1	Describe, discuss and demonstrate the clinical features of pregnancy, derive and discuss its differential diagnosis, elaborate the principles underlying and interpret pregnancy tests.	S	SH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ Clinical assessment/ Viva voce			
Topic: Maternal Changes in pregnancy		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal system in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Topic: Antenatal Care		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
OG8.1	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors.	K	KH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment		Community Medicine	
OG8.2	Elicit document and present an obstetric history including menstrual history, last menstrual period, previous obstetric history, comorbid conditions, past medical history and surgical history	K/S	SH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG8.3	Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being;	K/S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well-being	K/S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
OG8.5	Describe and demonstrate pelvic assessment in a model	K/S	SH	Y	DOAP session	Skill assessment			
OG8.6	Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OG8.7	Enumerate the indications for and types of vaccination in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG8.8	Enumerate the indications and describe the investigations including the use of ultrasound in the initial assessment and monitoring in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Complications in early pregnancy Number of competencies: (05) Number of procedures that require certification: (NIL)									
OG9.1	Classify, define and discuss the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	
OG9.3	Discuss the aetiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG9.4	Discuss the clinical features, laboratory investigations, ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
OG9.5	Describe the etiopathology, impact on maternal and fetal health and principles of management of hyperemesis gravidarum	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Antepartum haemorrhage		Number of competencies: (02)			Number of competencies that require certification: (NIL)				
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical features, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinic				
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management.	K	KH	Y	Lecture, Small group discussion			Pathology	
Topic: Multiple pregnancies		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
Topic: Medical Disorders in pregnancy		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver disease in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of isoimmunization in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Labour		Number of competencies: (05)			Number of procedures that require certification : (01)				
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito-anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	Lecture, Small group discussion (with models/ videos/ AV aids, etc.)	Theory/Clinical assessment/ Viva voce			
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
OG13.3	Observe/ assist in the performance of an artificial rupture of membranes	S	SH	N	DOAP session, Bedside clinic	Skill assessment			
OG13.4	Demonstrate the stages of normal labor in a simulated environment / mannequin and counsel on methods of safe abortion.	S	SH	Y	DOAP session	Skill assessment			
OG13.5	Observe and assist the conduct of a normal vaginal delivery	S	P	Y	DOAP session	Log book	10		
Topic: Abnormal Lie and Presentation; Maternal Pelvis		Number of competencies: (04)			Number of procedures that need certification : (NIL)				
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG14.2	Discuss the mechanism of normal labor, Define and describe obstructed labor, its clinical features; prevention; and management	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labor	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
Topic: Operative obstetrics Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG15.1	Enumerate and describe the indications and steps of common obstetric procedures, technique and complications: Episiotomy, vacuum extraction; low forceps; Caesarean section, assisted breech delivery; external cephalic version; cervical cerclage	S	KH	Y	Lecture, Small group discussion, seminars	Written/ skill assessment			
OG15.2	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/Assist in operative obstetrics cases – including - CS, Forceps, vacuum extraction, and breech delivery	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Complications of the third stage Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
OG16.2	Describe and discuss uterine inversion – causes, prevention, diagnosis and management.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations; monitoring of fetal well-being, including ultrasound and fetal Doppler; principles of management; prevention and counselling in intrauterine growth retardation	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment/ Viva voce			
Topic: Lactation Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG17.1	Describe and discuss the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding	S/A/C	SH	Y	DOAP session	Skill assessment			
OG17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Care of the new born Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Contraception		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment		Community medicine	
OG21.2	Describe & discuss PPIUCD programme	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Vaginal discharge		Number of competencies: (02)			Number of procedures that require certification :(NIL)				
OG22.1	Describe the clinical characteristics of physiological vaginal discharge.	K	KH	Y	Lecture	Theory			
OG22.2	Describe and discuss the etiology (with special emphasis on Candida, T. vaginalis, bacterial vaginosis), characteristics, clinical diagnosis, investigations, genital hygiene, management of common causes and the syndromic management	K	KH	Y	Lecture, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Normal and abnormal puberty		Number of competencies: (03)			Number of procedures that require certification : (NIL)				
OG23.1	Describe and discuss the physiology of puberty, features of abnormal puberty, common problems and their management	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			
OG23.2	Enumerate the causes of delayed puberty. Describe the investigation and management of common causes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG23.3	Enumerate the causes of precocious puberty	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Abnormal uterine bleeding		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
OG24.1	Define, classify and discuss abnormal uterine bleeding, its aetiology, clinical features, investigations, diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Amenorrhoea		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG25.1	Describe and discuss the causes of primary and secondary amenorrhoea, its investigation and the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Genital injuries and fistulae		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigation and implications on health and fertility and management of endometriosis and adenomyosis	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
Topic: Genital infections		Number of competencies: (04)			Number of procedures that require certification : (NIL)				
OG27.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of sexually transmitted infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.2	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of genital tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.3	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG27.4	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Infertility Number of competencies:(04) Number of procedures that require certification : (NIL)									
OG28.1	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility – methods of tubal patency, ovulation induction, assisted reproductive techniques	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.2	Enumerate the assessment and restoration of tubal latency	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.3	Describe the principles of ovulation induction	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.4	Enumerate the various Assisted Reproduction Techniques	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
Topic: Uterine fibroids Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis; investigations; principles of management, complications of fibroid uterus	K/A/C	KH	Y	Lecture, Bedside clinics	Theory/ OSCE/ Clinical Assessment/ Viva voce			
Topic: PCOS and hirsutism Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis; investigations; management, complications of PCOS	K/A/C	KH	Y	Lecture	Theory/ OSCE/ Clinical Assessment/ Viva voce			
OG30.2	Enumerate the causes and describe the investigations and management of hyperandrogenism	K	KH	N		Theory/ OSCE/ Clinical Assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Uterine prolapse		Number of competencies: (01)			Number of procedures that require certification :(NIL)				
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus	K/S	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Menopause		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OG32.1	Describe and discuss the physiology of menopause, symptoms, prevention, management and the role of hormone replacement therapy.	K	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG32.2	Enumerate the causes of postmenopausal bleeding and describe its management	K	KH	Y	Lecture, small group discussion Bedside clinics	Written/ Viva voce			
Topic: Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix		Number of competencies: (04)			Number of procedures that require certification : (NIL)				
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy	K	K	Y	Lecture, Small group discussion, Bedside clinics	Viva voce/ Written			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Benign and malignant diseases of the uterus and the ovaries Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer	K	KH	Y	Lecture, Bedside clinics	Viva voce/ Written/ skill assessment			
OG34.2	Describe and discuss the etiology, pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principal of management including staging laparotomy	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/ Viva voce			
OG34.3	Describe and discuss the etiology, pathology, classification, staging, clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/			
OG34.4	Operative Gynaecology : Understand and describe the technique and complications: Dilatation & Curettage (D&C); EA-ECC; cervical biopsy; abdominal hysterectomy; myomectomy; surgery for ovarian tumours; staging laparotomy; vaginal hysterectomy including pelvic floor repair; Fothergill's operation, Laparoscopy; hysteroscopy; management of postoperative complications	K/S	SH	Y	Videos, on manikins, observe procedures and surgeries in OR	Viva voce			
Topic: Obstetrics & Gynecological skills - I Number of competencies: (17) Number of procedures that require certification : (NIL)									
OG35.1	Obtain a logical sequence of history, and perform a humane and thorough clinical examination, excluding internal examinations (per-rectal and per-vaginal)	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.2	Arrive at a logical provisional diagnosis after examination.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.5	Determine gestational age, EDD and obstetric formula	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.6	Demonstrate ethical behavior in all aspects of medical practice.	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.7	Obtain informed consent for any examination / procedure	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.8	Write a complete case record with all necessary details	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.9	Write a proper discharge summary with all relevant information	S	SH	Y	Bedside clinics	Clinical assessment			
OG35.10	Write a proper referral note to secondary or tertiary centres or to other physicians with all necessary details.	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.11	Demonstrate the correct use of appropriate universal precautions for self-protection against HIV and hepatitis and counsel patients	S	SH	Y	DOAP session	Skill assessment			
OG35.12	Obtain a PAP smear in a stimulated environment	S	SH	Y	DOAP session	Skill assessment			
OG35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated / supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.16	Diagnose and provide emergency management of antepartum and postpartum hemorrhage in a simulated / guided environment	K/S	SH	Y	DOAP session	Skill assessment			
OG35.17	Demonstrate the correct technique of urinary catheterisation in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Obstetrics & Gynecological skills - II Number of competencies: (03) Number of procedures that require certification: (NIL)									
OG36.1	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration (a) Patient (b) Disease (c) Socio-economic status (d) Institution/ Governmental guidelines.	K/S	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG36.2	Organise antenatal, postnatal, well-baby and family welfare clinics	K/S	KH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG36.3	Demonstrate the correct technique of punch biopsy of uterus in a simulated/ supervised environment	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
Topic: Obstetrics & Gynecological skills - III Number of competencies: (07) Number of procedures that require certification : (NIL)									
OG37.1	Observe and assist in the performance of a Caesarean section	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.2	Observe and assist in the performance of Laparotomy	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.3	Observe and assist in the performance of Hysterectomy – abdominal/vaginal	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.5	Observe and assist in the performance of Endometrial aspiration - endocervical curettage (EA-ECC)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Viva voce			
OG37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Topic: Should observe Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG38.1	Laparoscopy	K/S/A/C	KH	Y	Bedside clinic, Small group discussion	Clinical assessment/ Viva voce			
OG38.2	Hysteroscopy	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.3	Lap sterilization	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.4	Assess the need for and issue proper medical certificates to patients for various purposes	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Human Anatomy									
AN48.8	Mention the structures palpable during Vaginal & Rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology, General Surgery	
AN49.1	Describe & demonstrate the Superficial & Deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.4	Describe stages and consequences of fertilisation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.5	Enumerate and describe the anatomical principles underlying contraception	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.6	Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of "sex-ratio".	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.5	Describe in brief abortion: decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Biochemistry									
BI10.1	Describe cancer initiation, promotion, oncogenes & oncogene activation.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA22.2	Enumerate the indications describe the principles enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Pharmacology									
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Community Medicine									
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
Forensic Medicine & Toxicology									
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences - sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PCPNDT)- Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the national family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the National Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion: MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
Dermatology & Venereology									
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Pediatrics									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva voce			Obstetrics & Gynaecology
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bed side clinics Skill Lab	Skill Assessment			Obstetrics & Gynaecology
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.9	Educate and counsel mothers for best practices in breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE18.1	List and explain the components, plans , outcomes of Reproductive Child Health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bed side clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE20.6	Explain the follow up care for neonates including Breast feeding, temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bed Side clinics, Skill lab	Log book			General Medicine, Obstetrics & Gynaecology
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Radiotherapy									
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture and group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

ORTHOPÆDICS (CODE: OR)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
ORTHOPEDICS									
Topic: Skeletal Trauma, Poly trauma		Number of competencies : (06)			Number of procedures that require certification: (NIL)				
OR1.1	Describe and discuss the Principles of pre-hospital care and Casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery, Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the Principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written/ Assesment/ Viva voce			General Surgery
OR1.5	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of dislocation of major joints, shoulder, knee, hip	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE/ Simulation			
OR1.6	Participate as a member in the team for closed reduction of shoulder dislocation / hip dislocation / knee dislocation	K/S/A/C	SH	Y	Simulation, DOAP session	OSCE/ Simulation			
Topic: Fractures		Number of competencies : (16)			Number of procedures that require certification: (NIL)				
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/ SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Select, prescribe and communicate appropriate medications for relief of joint pain	K	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/ SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur (c) Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Musculoskeletal Infection Number of competencies : (03) Number of Procedures that require certification: (NIL)									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.2	Participate as a member in team for aspiration of joints under supervision	K/S/A/C	SH	Y	Small group Discussion. DOAP session	Viva voce/ OSCE/ Skills assessment		–	
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
Topic: Skeletal Tuberculosis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
Topic: Rheumatoid Arthritis and associated inflammatory disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			General Medicine
Topic: Degenerative disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR6.1	Describe and discuss the clinical features, investigations and principles of management of degenerative condition of spine (Cervical Spondylosis, Lumbar Spondylosis, PID)	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Metabolic bone disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR7.1	Describe and discuss the aetiopathogenesis, clinical features, investigation and principles of management of metabolic bone disorders in particular osteoporosis, osteomalacia, rickets, Paget's disease	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Poliomyelitis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR8.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management a patient with Post Polio Residual Paralysis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Cerebral Palsy Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR9.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management of Cerebral palsy patient	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE			
Topic: Bone Tumors		Number of competencies : (01)			Number of procedures that require certification: (NIL)				
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General surgery, Radiotherapy
Topic: Peripheral nerve injuries		Number of competencies : (01)			Number of procedures that require certification: (NIL)				
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Topic: Congenital lesions		Number of competencies : (01)			Number of procedures that require certification: (NIL)				
OR12.1	Describe and discuss the clinical features, investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Topic: Procedural Skills		Number of competencies : (02)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR13.1	Participate in a team for procedures in patients and demonstrating the ability to perform on mannequins / simulated patients in the following: i. Above elbow plaster ii. Below knee plaster iii. Above knee plaster iv. Thomas splint v. splinting for long bone fractures vi. Strapping for shoulder and clavicle trauma	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) I.V. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology
Topic: Counselling Skills Number of competencies : (03) Number of procedures that require certification: (NIL)									
OR14.1	Demonstrate the ability to counsel patients regarding prognosis in patients with various orthopedic illnesses like a. fractures with disabilities b. fractures that require prolonged bed stay c. bone tumours d. congenital disabilities	K/S/A/C	KH / SH	Y	Case discussion, Video assisted lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
OR14.2	Demonstrate the ability to counsel patients to obtain consent for various orthopedic procedures like limp amputation, permanent fixations etc..	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR14.3	Demonstrate the ability to convince the patient for referral to a higher centre in various orthopedic illnesses, based on the detection of warning signals and need for sophisticated management	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Human Anatomy									
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical, DOAP session, Small group teaching	Viva voce/ Practicals		Orthopedics	
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.12	Describe and demonstrate Shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skills assessment		Orthopedics	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN17.2	Describe anatomical basis of complications of fracture neck of femur.	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Pathology									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
Microbiology									
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections.	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
Forensic Medicine & Toxicology									
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic medicine, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic DOAP session	Written/ Viva voce / OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
General Medicine									
IM7.5	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.8	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.9	Determine the potential causes of join pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.13	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			Orthopedics
IM7.17	Enumerate the indications for arthrocentesis	K	K	Y	small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bed side clinic, small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM24.12	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic discussion	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment / written			Orthopedics
PM6.3	Describe the principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.1	Describe and discuss the clinical features, diagnostic work up, work up diagnosis and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, applications of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			General Medicine, Orthopedics, General Surgery

ANAESTHESIOLOGY (CODE: AS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station		Pharmacology	

Topic: General Anaesthesia

Number of competencies: (07)

Number of procedures that require certification : (NIL)

AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non depolarising muscle relaxants, anticholinesterases)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
AS4.2	Describe the anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS4.4	Observe and describe the principles and the steps/ techniques in maintenance of vital organ functions in patients undergoing surgical procedures	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.5	Observe and describe the principles and the steps/ techniques in monitoring patients during anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.6	Observe and describe the principles and the steps/ techniques involved in day care anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.7	Observe and describe the principles and the steps/ techniques involved in anaesthesia outside the operating room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
Topic: Regional anaesthesia Number of competencies: (06) Number of procedures that require certification: (NIL)									
AS5.1	Enumerate the indications for and describe the principles of regional anaesthesia (including spinal, epidural and combined)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
AS5.2	Describe the correlative anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS5.5	Observe and describe the principles and steps/ techniques involved in caudal epidural in adults and children	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in surgery (including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Post-anaesthesia recovery Number of competencies: (03) Number of procedures that require certification: (NIL)									
AS6.1	Describe the principles of monitoring and resuscitation in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.2	Observe and enumerate the contents of the crash cart and describe the equipment used in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Intensive Care Management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS7.1	Visit, enumerate and describe the functions of an Intensive Care Unit	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
Topic: Pain and its management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Topic: Fluids Number of competencies: (04) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS9.1	Establish intravenous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.2	Establish central venous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
Topic: Patient safety Number of competencies: (04) Number of procedures that require certification: (NIL)									
AS10.1	Enumerate the hazards of incorrect patient positioning	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.2	Enumerate the hazards encountered in the perioperative period and steps/techniques taken to prevent them	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Physiology									
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology Pharmacology	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Pharmacology									
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anaesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anaesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
General Medicine									
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KB	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology General Surgery
General Surgery									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y	DOAP session	Skill Assessment			Anesthesiology
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
SU17.10	Demonstrate Airway maintenance and recognize and management of tension pneumothorax, hemothorax and flail chest in simulated environment	S	SH	Y	DOAP session	Skill Assessment/ Log book			Anesthesiology
Orthopaedics									
OR1.1	Describe and discuss the Principles of Pre hospital care and Casualty management of a trauma victim including principles of triage,	K/S/A/C	K, KH	Y	Lecture with video, Small group Discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery Anaesthesiology
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) IV. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology

RADIODIAGNOSIS (CODE: RD)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RADIODIAGNOSIS									
Topic: Radiological investigations and Radiation safety		Number of competencies: (13)			Number of procedures that require certification: (NIL)				
RD1.1	Define radiation and the interaction of radiation and importance of radiation protection	K	KH	Y	Lecture, Demonstration				
RD1.2	Describe the evolution of Radiodiagnosis. Identify various radiological equipments In the current era	S	SH	Y	Lecture, Demonstration				
RD1.3	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder of ENT	K/S	SH	Y	Lecture, Demonstration				
RD1.4	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Ob & Gy	K/S	SH	Y	Lecture, Demonstration				
RD1.5	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in internal medicine	K/S	SH	Y	Lecture, Demonstration				
RD1.6	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorders in surgery	K/S	SH	Y	Lecture, Demonstration				
RD1.7	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Pediatrics	K/S	SH	Y	Lecture, Demonstration				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RD1.8	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to common malignancies	K/S	SH	Y	Lecture, Demonstration				
RD1.9	Describe the role of Interventional Radiology in common clinical conditions	K	KH	Y	Lecture, Demonstration				
RD1.10	Describe the role of Emergency Radiology, miscellaneous & applied aspects, interaction with clinical departments	K	KH	Y	Lecture, Demonstration				
RD1.11	Describe preparation of patient for common imaging procedures	K	KH	Y	Lecture, Demonstration				
RD1.12	Describe the effects of radiation in pregnancy and the methods of prevention/ minimization of radiation exposure	K	KH	Y	Lecture, Demonstration				
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine & Toxicology	
<p>Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation</p>									
Integration									
Human Anatomy									
AN13.4	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN43.7	Identify the anatomical structures in 1) Plain x ray skull, 2) AP view and lateral view 3) Plain x ray cervical spine - AP and lateral view 4) Plain x ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN541.	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography &Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially: – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
General Medicine									
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM6.12	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Small group session/ Written/ Viva voce		Radiodiagnosis	
Obstetrics & Gynaecology									
OG9.4	Discuss the clinical features, laboratory investigations ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
Pediatrics									
PE21.12	Interpret report of Plain radiograph of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE23.13	Interpret a chest radiograph and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.16	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in Pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE30.23	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skill lab	Log book		Radiodiagnosis	
PE34.8	Interpret a Chest radiograph	S	SH	Y	Bedside clinics, Skill lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
General Surgery									
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce Skill assessment		Radiodiagnosis	

RADIOTHERAPY (CODE: RT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RADIOTHERAPY									
Topic: Principles of Radiation Oncology (Radiotherapy)		Number of competencies: (03)			Number of procedures that require certification : (NIL)				
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery, Anaesthesiology
RT1.2	Describe and discuss interaction of radiation with matter & measurement of radiation	K	KH	Y	Lecture	Written/ Viva voce			
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
Topic: Radiation Protection		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
RT2.1	Describe and discuss radiation protection and personnel monitoring during radiation treatment	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiobiology & Chemoradiation		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
RT3.1	Describe and discuss cell cycle and cell survival curve, principles of radiobiology	K	KH	Y	Lecture	Written/ Viva voce			
RT3.2	Describe and discuss synergism of radiation and chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiation Treatment Delivery & outcome		Number of competencies: (09)			Number of procedures that require certification : (NIL)				
RT4.1	Describe and discuss teletherapy machine (Co60/LINAC)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.2	Enumerate, describe and discuss types of treatment plan, basic workflow of 2D/3DCRT/IMRT/IGRT	K	KH	Y	DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RT4.3	Describe and discuss Brachytherapy machine (remote after loading)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.4	Describe and discuss different radioactive isotopes and their use in cancer patients	K	KH	Y	Lecture	Written/ Viva voce			
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinics	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT4.9	Display empathy in the care of patients with cancer	A	SH	N				AETCOM	
Topic: Cancer Prevention & Registries		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH- Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
Orthopaedics									
OR10.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General Surgery, Radiotherapy

DENTISTRY (CODE: DE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DENTISTRY									
Topic: Dental Caries		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.3	Identify Dental caries	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
DE1.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Edentulous state		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE2.1	Discuss the various causes for partial /complete loss of teeth and associated structures	K	K	N	Lecture, Small group discussion	Viva voce			
DE2.2	Discuss the local and systemic sequelae of the above	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.3	Identify complete complement of teeth and identify missing teeth	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE2.4	Enumerate common ways of restoring the edentulous state	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.5	Counsel patients on the importance of restoring missing teeth/tissues with respect to the benefits on oral and systemic health.	A/C	SH	Y	DOAP session	Document in Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Malocclusion		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE3.1	Aware of malocclusion and the tissues that cause it	K	K	N	Lecture, Small group discussion	Viva voce			
DE3.2	Enumerate the impact of malocclusion on aesthetics, health	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE3.3	Identify malocclusion	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE3.4	Counsel patients with respect to correction of malocclusion and the role it might have on oral health specifically on the TMJ	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Oral cancer		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book		Pathology	ENT
Topic: Periodontal disease		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.2	Enumerate the common diseases that affect the periodontium and identify local and systemic causative factors	K	KH	Y	Lecture, Small group discussion	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE5.3	Identify Periodontal disease	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE5.4	Discuss the role of Periodontal disease as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE5.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health and vice versa	A/C	SH	Y	DOAP session	Document in Log book			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration									
Pathology									
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	

List of contributing subject Experts

1. Human Anatomy

- Dr. Praveen R Singh, Professor & Head, Department of Anatomy, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Nachiket Shankar, Associate Professor, Department of Anatomy, St. John's Medical College & Hospital, Bangalore

2. Physiology

- Dr. Mario Vaz, Professor, Department of Physiology, St. John's Medical College & Hospital, Bangalore
- Dr. Jayashree Sengupta, Former Professor & Head, Department of Physiology, All India Institute of Medical Sciences, New Delhi.
- Dr Hasmukh D Shah, Professor & Head, Department of Physiology, Pramukhswami Medical College, Karamsad, Gujarat

3. Biochemistry

- Dr. Nibhriti Das, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi
- Dr. S. P. Singh, Professor, Department of Biochemistry, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh
- Dr. Hitesh N Shah, Professor & Head, Department of Biochemistry, Pramukhswami Medical College, Karamsad, Gujarat

4. Pharmacology

- Dr. S. K. Maulik, Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi
- Dr. Vandana Roy, Professor, Department of Pharmacology, Maulana Azad Medical College, New Delhi

5. Pathology

- Dr. S. Datta Gupta, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi
- Dr. Uma Chaturvedi, Professor, C-1303, Freedom Park Life, Sector- 57, Gurugram

6. Microbiology

- Dr. S. Geetalakshmi, Dean, Professor, Department of Microbiology, Stanley Medical College, Chennai, Tamil Nadu.
- Dr. Padma Srikanth, Professor, Department of Microbiology, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suman Singh, Professor, Department of Microbiology, Pramukhswami Medical College, Karamsad, Gujarat

7. Forensic Medicine & Toxicology

- Dr. Sanjeev Lalwani, Professor & Registrar (Academics), Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. T. D. Dogra, Former Director & Former Head, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi; currently, Vice Chancellor, SGT University, Gurugram
- Dr. S.D. Nanandkar, Professor & Head, Department of Forensic Medicine, Grant Government Medical College & Sir J.J. Group of Hospitals, Mumbai
- Dr. Indrajit L. Khandekar, In-charge CFMU and Associate Professor, Department of Forensic Medicine & Toxicology, MGIMS and Kasturba Hospital, Sewagram, Wardha.
- Dr. S. B. Punpale, Professor & Head, Department of Forensic Medicine, B. J. Medical College, Pune, Maharashtra

8. Community Medicine

- Dr. B. S. Garg, Professor & Head, Department of Community Medicine, Mahatama Gandhi Institute of Medical Sciences, Wardha, Sewagram, Maharashtra

- Dr. Umesh Kapil, Professor, Department of Community Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. Sanjay Zodpey, Director, Public Health Foundation of India, Isid Campus, 4 Institutional Area, Vasant Kunj, New Delhi
- Dr. Saudan Singh, Professor, Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. Dinesh Kumar, Professor, Department of Community Medicine, Pramukhswami Medical College, Karamsad, Gujarat

9. General Medicine & Respiratory Medicine

- Dr. Krishna G. Seshadri, Visiting Professor, Endocrinology & Metabolism, Balaji Vidyapeeth, Puducherry
- Dr. M. K. Bhatnagar, Director Professor, Department of General Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Aparna Agarwal, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Anil Gurtoo, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi

10. Pediatrics

- Dr. Harish Chellani, Professor of Pediatrics, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. A. K. Dutta, Former Head, Kalawati Saran Children's Hospital, New Delhi
- Dr. S. Aneja, Director Professor & Head, Department of Pediatrics, Kalawati Saran Children's Hospital, New Delhi

11. Psychiatry

- Dr. Rakesh Kumar Chadda, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi

- Dr. N. M. Patil, Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi
- Dr. Rajesh Rastogi, Consultant & Head Department of Psychiatry, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.
- Dr. Jagdish R Varma, Associate Professor, Department of Psychiatry, Pramukhswami Medical College, Karamsad, Gujarat

12. Dermatology, Venereology & Leprosy

- Dr. R. K. Gautam, Professor, Department of Dermatology, Venereology & Leprosy, Dr. Ram Manohar Lohia Hospital, New Delhi.
- Dr. Sujay Khandpur, Professor, Department of Dermatology, Venereology & Leprosy, All India Institute of Medical Sciences, New Delhi
- Dr. S. Murugan, Associate Professor of Dermatology, Sri Ramachandra Medical College & Research Institute, Chennai

13. Physical Medicine and Rehabilitation

- Dr. Sanjay Wadhwa, Professor, Department of Physical Medicine & Rehabilitation, All India Institute of Medical Sciences, New Delhi
- Dr. George Tharion, Head, Department of Physical Medicine & Rehabilitation, Christian Medical College, Vellore, Tamil Nadu
- Dr. Jagdish Menon, Professor & Head, Department of Orthopaedics and Dept. of Physical & Rehabilitative Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

14. General Surgery

- Dr. N Ananthkrishnan, 2A Vairam Enclave, Siddhananda Nagar, Pondicherry -605005.
- Dr. P. V. Chalam, Former Professor, Department of Surgery, Gandhi Medical College, Secunderabad, Telengana.

- Dr. Dinesh Bhatnagar, Professor, Department of General Surgery, North Delhi Municipal Corporation Medical College, Hindu Rao Hospital, Malka Ganj, Delhi

15. Ophthalmology

- Dr. Smita Singh, Professor, Department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Wardha

16. Oto-rhino-laryngology

- Dr. Achal Gulati, Director Professor, Department of ENT, Maulana Azad Medical College, New Delhi
- Dr. Ravi Kumar, Professor & Head, Department of ENT, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suma Mathew, Professor, Department of ENT, Christian Medical College, Vellore, Tamil Nadu

17. Obstetrics and Gynaecology

- Dr. Neerja Bhatla, Professor, Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi
- Dr. Annie Regi, Professor & Head, Department of Obstetrics & Gynecology, Christian Medical College, Vellore, Tamil Nadu
- Dr. Usha Vishwanath, Professor, Department of Obstetrics & Gynecology, Sri Ramachandra Medical College & Research Institute, Chennai

18. Orthopaedics

- Dr. P.V. Vijayaraghavan, Vice Chancellor & Professor of Orthopedics, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Raj Bahadur, Professor & Head, Department of Orthopaedics, Postgraduate Institute of Medical Sciences, Chandigarh
- Dr. SC. Goel, Professor, Department of Orthopaedics, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

19. Anaesthesiology

- Dr. Baljit Singh, Director Professor of Anaesthesia, G. B. Pant Hospital, Delhi
- Dr. Ramesh Keshav, Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi
- Dr. Mridula Pawar, Consultant & Head, Department of Anaesthesia, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi

20. Radio- Diagnosis

- Dr. Kishor Taori (late), Professor & Head, Department of Radiodiagnosis, Government Medical College, Nagpur

21. Radiotherapy

- Dr. P. K. Jhulka, Dean & Professor of Radiotherapy, All India Institute of Medical Sciences, New Delhi.
- Dr. Shyam Shrivastava, Head, Department of Radiation, Tata Memorial Hospital, Mumbai

22. Dentistry

- Dr. Sridevi Padmanabhan, Professor, Department of Orthodontics, Faculty of Dental Sciences, Sri Ramchandra Medical College & Research Institute, Chennai