REGULATIONS AND CURRICULUM GOVERNING

MD FORENSIC MEDICINE PROGRAM

(2024-25)

Name of the Constituent Unit/Centre: Yenepoya Medical College



YENEPOYA

Deemed to be University

Deralakatte, Mangalore, Karnataka.

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NOTIFICATION FROM THE UNIVERSITY

YENEPOYA
(DEEMED TO BE UNIVERSITY)
Recognized under Sec 3(A) of the UGC Act 1956
Accredited by NAAC with 'A' Grade

NOTIFICATION – 34-ACM/2019 dtd. 20.02.2019

Sub:- Implementation of Competency Based Medical Education PG Curriculum

Ref. : Resolution of the Academic Council at its 34th Meeting held on 08.02.2019 vide Agenda 33

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The Academic Council at its 34th Meeting held on 08.02.2019 and subsequently the 45th meetings of Board of Management held on 09.02.2019 have accepted the proposal for implementation of Competency Based Medical Education (CBME) for the PG Curricula of the following programs as per the MCI Norms.

1. MD in Pathology
2. MD in General Medicine
3. MD in Anaesthesiology
4. MD in Paediatrics
5. MD in Respiratory Medicine
6. MD in Radio-diagnosis
7. MD in Anatomy
8. MD in Physiology
9. MD in Biochemistry
10. MD in Microbiology
11. MD in Pharmacology
12. MD in Forensic Medicine
13. MD in Psychiatry
14. MD in Dermatology
15. MD in Community Medicine
16. MS in General Surgery
17. MS in OBG
18. MS in Otorhinolaryngology
19. MS in Ophthalmology
20. MS in Orthopaedics

This revised curriculum shall come into effect from the academic year 2019-2020 onwards.

REGISTRAR

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MD IN FORENSIC MEDICINE

Preamble:

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training.

This programme is meant to standardize and strengthen Forensic Medicine teaching at the post graduate level throughout the country so that it will benefit the judiciary and the legal system of the country in providing justice which will ultimately benefit the community at large. It will also help in achieving uniformity in undergraduate teaching.

The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject-content specialists. The Reconciliation Board of Academic Committee has attempted to render uniformity without compromise to purpose and content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of "domains of learning" under the heading "competencies".

SUBJECT SPECIFIC LEARNING OBJECTIVES

The **Goal** of MD Forensic Medicine is to train a doctor to become a competent medico-legal expert, teacher and researcher in the subject who:

1. is aware of medico legal aspects in various settings
2. *is aware of contemporary advances and developments* in the field of Forensic Medicine.
3. has *acquired the competencies* pertaining to the subject of Forensic Medicine that are required to be practiced at all levels of health system.
4. is oriented to the *principles of research methodology.*
5. has acquired *skills in educating* and imparting training to medical, paramedical and allied professionals.

A post graduate student, upon successfully qualifying in the M.D (Forensic Medicine) examination, should be able to:

1. Become an expert in Forensic Medicine.
2. Identify and define medico-legal problems as they emerge in the community and work to resolve such problems by planning, implementing, evaluating and modulating Medico-legal services.
3. Undertake medico-legal responsibilities and discharge medico-legal duties in required settings.
4. Keep abreast with all recent developments and emerging trends in Forensic Medicine, Medical Ethics and the law.
5. Deal with general principles and practical problems related to forensic, clinical, emergency, environmental, medico-legal and occupational aspects of toxicology.
7. Deal with medico-legal aspects of Psychiatry, mental health and drug addiction.
8. Impart education in Forensic Medicine and Toxicology to under-graduate and post-graduate students with the help of modern teaching aids.
9. Assess the students' knowledge and skills in the subject of Forensic Medicine
10. Oriented to research methodology and conduct of research in the subject

SUB JECT SPECIFIC COMPETENCIES

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

A. Cognitive domain

1. Describe the legal and medico-legal system in India.
2. Acquire knowledge on the philosophy and guiding principles of Forensic Medicine course.
3. Describe the programme goals and objectives of the Forensic Medicine course.
4. Acquire knowledge on conduct of medico-legal autopsy independently with required physical assistance, prepare report and derive inferences.
5. Outline the principles and objectives of postmortem examination.
6. Describe the formalities and procedures of medico-legal autopsies in accordance with

existing conventions and the law.

7. Identify the role of anatomy, physiology, biochemistry, microbiology, pathology, blood bank, psychiatry, radiology, forensic science laboratory as well as other disciplines of medical science to logically arrive at a conclusion in medico-legal autopsies and examination of medico-legal cases.

8. Describe the principles of the techniques used in toxicological laboratory namely TLC (Thin Layer Chromatography), GLC (Gas Liquid Chromatography), AAS (Atomic Absorption Spectrophotometry), HPLC (High Performance Liquid Chromatography) and Breath Alcohol Analyzer.

9. Describe relevant legal/court procedures applicable to medico-legal/medical practice.
10. Describe the general forensic principles of ballistics, serology, analytical toxicology and photography.
11. Interpret, analyze and review medico-legal reports prepared by other medical officers at the time of need.
11. Describe role of DNA profile and its application in medico-legal practice.
12. Describe the law/s relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.

13. Describe the legal and ethical aspects of Forensic Procedures including Narco-analysis, Brain mapping and Polygraph etc.
14. Describe the medico-legal aspects of Psychiatry, addiction and mental health.

B. Affective domain

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the clinician or other colleagues to provide the best possible opinion.
2. Should be able to follow ethical principles in dealings with patients, police personnel, relatives and other health personnel and to respect their rights.
3. Follow medical etiquettes in dealing with each other.
4. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

At the end of the course, the student should acquire following skills and be able to:

1. Perform medico-legal autopsy independently with required physical assistance, prepare report and derive inferences.
2. Perform medico-legal examination of users of alcohol, drugs and poisons and prepare report.
3. Perform medico-legal examination in cases of sexual offences and prepare report.
4. Interpret histo-pathological, microbiological, radiological, chemical analysis, DNA profile and other investigative reports for medico-legal purposes.
5. Perform medico-legal examination of bones, clothing, wet specimens and weapons.
6. Depose as an expert witness in a court of Law on medico-legal matters.
7. Examine, identify, prepare reports and initiate management on medico-legal cases in emergency set up.
8. Identify and discharge all legal responsibilities in medico-legal matters.
9. Plan, organize and supervise medico-legal work in general/teaching/district hospitals and in any health care set up.
10. Collect, preserve and dispatch various samples and trace evidences to the concerned authorities in appropriate manner.
11. Help and Advise authorities on matters related to medical ethics and medico-legal issues.
12. Discharge duties in respect of forensic, clinical, emergency, environmental, medico-legal and occupational aspects of toxicology.
13. Plan, organize and manage toxicological laboratory services in any health care set up.
14. Provide information and consultation on all aspects of toxicology to professionals, industry, Government and the public at large.
15. Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.
16. Do interaction with allied departments by rendering services in advanced laboratory investigations and relevant expert opinion.
17. Participate in various workshops/seminars/journal clubs/demonstration in the allied

departments, to acquire various skills for collaborative research.

Time frame to acquire knowledge & skills:

First year of PG programme:

1. Orientation Programme
2. Basic autopsy skills.
3. Orientation to the applied aspects of Anatomy, Physiology, Biochemistry
4. General principles of Forensic Medicine.
5. Introduction to Medical Toxicology.
6. Assisting in scheduling of teaching sessions.
7. Participation in undergraduate teaching.
8. Posting for autopsy work, clinical forensic medicine and toxicology.
9. Participation in departmental activities
10. Participation in seminar, CME, workshop etc.
11. Orientation to organization and functioning of toxicology/research laboratory.
12. Preparation of thesis protocol.
13. Being self-updated with recent advances in the subject

Second year of PG programme:

1. Conduct of autopsy examination without supervision in routine autopsy cases
2. Conduct of autopsy examination with supervision in expert opinion cases.
3. Conduct of theory and practical sessions for undergraduates
4. Thesis and other research work
5. Clinical forensic medicine work for practical experience in medico-legal procedures and on-the-job practical training in medico-legal aspects of emergency medicine, radiology and other clinical disciplines.
6. Orientation to the applied aspects of Microbiology, Pathology, Blood Bank, Psychiatry as related to forensic sciences.
7. Posting for autopsy work, clinical forensic medicine and toxicology laboratory.
8. Attend court summons for cases conducted by themselves or where deputed to attend in cases where an expert is required to depose by Court of Law

Third year of PG programme:

1. Organize teaching sessions and thesis work.
2. Submission of thesis six months prior to examination.
3. Posting for autopsy work, clinical forensic medicine and toxicology laboratory to continue.
4. The PG trainee shall be required to conduct minimum of 100 autopsy cases and minimum of 100 clinical cases during the entire training period.
5. Attend Court summons for cases conducted by themselves or when deputed where an expert is required to depose by the Court of Law.
6. The PG trainee shall be required to attend or accompany an expert to attend a minimum of 20 court summons, of which at least 5 should pertain to clinical cases.

SYLLABUS

Course contents:

I. General Principles of Forensic Medicine and Toxicology

i. Identify the role of anatomy, physiology, biochemistry, microbiology, pathology, blood bank, psychiatry, radiology, forensic science laboratory as well as other disciplines of medical science to logically arrive at a conclusion in medico-legal autopsies and examination of medico-legal cases.

ii. Describe the basic principles of techniques used in toxicological laboratory namely TLC, GLC, ASS, HPLC and Breath Alcohol Analyzer.

iii. Execute the skills and knowledge expected at undergraduate level.

II. Basic Sciences and allied Subjects

A. Anatomy: Anatomy of parts and organs of the body which are important from the medico-legal aspect.

i. Describe surface and regional anatomy of head, neck, chest and abdomen.

ii. Describe gross anatomy and blood supply of heart, brain, lungs, spleen, liver and kidneys.

iii. Describe gross anatomy of male and female genitalia.

iv. Describe the comparative anatomy of male and female skeleton.

v. Perform histological examination of various tissues.

vi. Describe the development of foetus.

B. Physiology and Biochemistry: Mechanism of phenomena that are important in the body from the medico-legal viewpoint.

i. Describe mechanism of fluid and electrolyte balance, thermoregulation in newborn and adults, endocrine functions.

ii. Describe physiology of sexual behavior.

iii. Describe physiological functioning of circulatory system, digestive system, respiratory system, haemopoietic system, central nervous system and reproductive system including pregnancy.

C. Pathology: Pathophysiology of vital processes and response mechanisms that modulate tissue and organ reaction to all forms of injury and have a bearing on antemortem and postmortem appearance in medico-legal cases, assessment of the duration of injuries and correlate trauma and disease.

i.Describe pathology of inflammation and repair, immunity and hypersensitivity, Thrombosis and embolism, electric and ionizing radiation injuries, genetic factors in disease, deficiency disorders and malnutrition.

ii. Describe pathology of myocardial infarction, congenital heart diseases, tuberculosis of lungs, cirrhosis of liver, diseases of glomeruli and tubules and interstitial; tissues of Kidney, tumours, endocrine disorders, venereal diseases, spontaneous intracranial hemorrhages.

iii. Describe the pathology of sudden death.

iv. Describe local and systemic response to trauma and patho-physiology of shock.

v. Describe pathology of common infections and infestations of medico-legal significance.

D. Dentistry: Adequate knowledge of dentistry for solution of medico-legal problems like, injuries, age determination and identification

E. Radiology: Adequate knowledge of radiological procedures for solution of medico-legal problems.

F. Fundamentals of Forensic Medicine:

i. Describe the general forensic principle of ballistics, serology, analytical toxicology and photography.
ii. Interpret the scene of crime.
iii. Describe role of DNA profile and its application in medico-legal practice.
iv. Examine bloodstains for blood grouping, nuclear sexing, HLA typing, seminal stains and hair for medico-legal purpose.
v. Describe ethical aspects of Forensic Procedures including Narco-analysis, Brain mapping and Polygraph

III. Medical Ethics and Law (Medical Jurisprudence)

i. Describe the history of Forensic Medicine.

ii. Describe the legal and medico-legal system in India.

iii. Describe medical ethics and the law in relation to medical practice, declarations, oath, etiquette, Medical Council of India, disciplinary control, rights and duties of a registered medical practitioner's professional misconduct, consent, confidentiality, medical negligence (including all related issues) and Consumer Protection Act.

iv. Describe medical ethics and law in relation to organ transplantation, biomedical human research and experimentation, human rights, cloning, genetic engineering, human genome, citizen's charter and International codes of medical ethics.

v. Describe the ethics and law in relation to artificial insemination, abortion, antenatal sex, foetus, genetics and euthanasia.

vi. Interpret the ethics and law applicable to the human (clinical trials) and animal experimentation.

vii. Describe ethics in relation to elderly, women and children.

viii. Describe medical ethics and law in relation to nursing and other medical services/practices.

ix. Understanding about bio-ethics

IV. Clinical Forensic Medicine

i. Examine, assess legal implications and prepare report or certificate in cases of physical assault, suspected drunkenness, sexual offences, consummation of marriage and disputed paternity.

ii. Collect, preserve and dispatch the specimen/material to the concerned authority and interpret the clinical and laboratory findings which are reported.

iii. Examine injured person, prepare medico-legal report and initiate management.

iv. Determine the age and establish identity of an individual for medico-legal purpose.

v. Examine a person and assess disability in industrial accidents and diseases.

vi. Perform examination and interpret findings for medico-legal purposes in cases pertaining to pregnancy, delivery, artificial insemination, abortion, sterilization, Impotence, AIDS and infectious disease.

vii. Describe normal and abnormal sexual behavior and its medico-legal implications.

viii. Examine and assess the medical fitness of a person for insurance, government service, sickness and fitness on recovery from illness.

ix. Examine medico-legal problems related to clinical disciplines of medicine and allied subjects, Pediatrics, Surgery and allied subjects, ENT, Ophthalmology, Obstetrics and Gynecology, Dermatology and Anesthesiology.

x. Examine medico-legal problems related to children, women and elderly.

xi. Identify the cases of torture and violation of human rights and issues thereto

V. Forensic Pathology

i. Apply the principles involved in methods of identification of human remains by race, age, sex, religion, complexion, stature, hair, teeth, anthropometry, dactylography, foot prints, hairs, tattoos, poroscopy and superimposition techniques.

ii. Perform medico-legal postmortem and be able to exhume, collect, preserve and dispatch specimens or trace evidence to the appropriate authority.

iii. Diagnose and describe the pathology of wounds, mechanical and regional injuries, ballistics and wound ballistics, electrical injuries, lightening, neglect and starvation, thermal injuries, deaths associated with sexual offences, pregnancy, delivery, abortion, child abuse, dysbarism and barotraumas.

iv. Describe patho-physiology of shock and neurogenic shock.

v. Describe patho-physiology of asphyxia, classification, medico-legal aspects and postmortem findings of different types of asphyxial deaths.

vi. Diagnose and classify death, identify the signs of death, postmortem changes, interpret autopsy findings, artifacts and results of the other relevant investigations to logically conclude the cause, manner (suicidal, homicidal and accidental) and time of death.

vii. Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.

viii. Demonstrate postmortem findings in infant death and to differentiate amongst live birth, still birth and dead born.

ix. Perform postmortem examination in cases of death in custody, torture and violation of human rights.

x. Perform postmortem examination in cases of death due to alleged medical negligence as in operative and anesthetic deaths.

VI. Toxicology

i. Describe the law relating to poisons, drugs, cosmetics, narcotic drugs and a. psychotropic substances.

ii. Examine and diagnose poisoning cases and apply principles of general management and organ system approach for the management of poisoning cases.

iii. Describe the basic principles of pharmacokinetics and pharmacodynamics of poisonous substances.

iv. Describe the toxic hazards of occupation, industry, environment and the principles of predictive toxicology.

v. Collect, preserve and dispatch material/s for analysis, interpret the laboratory findings and perform the Medico-legal formalities in a case of poisoning.

vi. Demonstrate the methods of identification and analysis of common poisons

vii. Describe the signs, symptoms, diagnosis and management of common acute and chronic poisoning due to:

a. Corrosives
b. Nonmetallic substances
c. Insecticides and weed killers
d. Metallic substances
e. Vegetable and organic irritants
f. Somniferous compounds
g. Inebriant substances
h. Deliriant substances
i. Food Contamination/adulteration.
j. Substances causing spinal and cardiac toxicity
k. Substances causing asphyxia (Asphyxiants)
l. Household toxins
m. Toxic envenomation
n. Biological and chemical warfare
o. Environmental intoxicants
P. Occupational intoxicants

VII. Forensic Psychiatry

i. Explain the common terminologies of forensic importance in Psychiatry.
ii. Describe the medico-legal aspects of Psychiatry and mental health.
iii. Describe medico-legal aspects of drug addiction.
iv. Describe role of Psychiatry in criminal investigation, punishment and trial.
v. Describe the civil and criminal responsibilities of a mentally ill person.
vi. Describe the role of Psychology in criminal investigation, punishment and trial

TEACHING AND LEARNING METHODS

Teaching methodology

1. **Lectures:** Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.

   The course shall be of three years, organized in six units (0-5). This modular pattern is a guideline for the department, to organize training. Training programme can be modified depending upon the work load and academic assignments of the department.

2. **Journal Club & Subject seminars:**
   Both are recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the Log Book relevant details. Further, every PG trainee must make a presentation from the allotted journal(s), selected articles and a total of 12 seminar presentations in three years. The presentations would be evaluated and would carry weightage for internal assessment.
3. **Case Presentations:** Minimum of 5 cases to be presented by every PG trainee each year. They should be assessed using check lists and entries made in the log book
4. **Clinico-Pathological correlation \ Conference:** Recommended once a month for all post graduate students. Presentation is to be done by rotation. If cases are not available, it could be supplemented by published CPCs.
5. **Inter-Departmental Meetings:** These meetings should be attended by post graduate students and relevant entries must be made in the Log Book.
6. **Teaching Skills:** The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
7. Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific fora.

8. **Continuing Medical Education Programmes (CME):** At least two CME programmes should be attended by each student in 3 years.
9. **Conferences:** The student to attend courses, conferences and seminars relevant to the speciality.

10. A postgraduate student of a postgraduate degree course in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

11. **Rotation:**

Other than the Department of Forensic Medicine, student may be posted for training in the following clinical disciplines for a given period of time on rotational basis:

	Place of posting	First year	Second year	Third year
01	Trauma & Emergency/ Casualty / Emergency medicine department	1 month	15 days	15 day
02	Radiology	7 days	5 days	3 days
03	Psychiatry	5 days	3 days	2 days
04	Forensic science lab	7 days	15 days	Not required
05	Histopathology	7 days	5 days	3 days

12. Department should encourage e-learning activities.

ASSESSMENT

FORMATIVE ASSESSMENT, ie., during the training

General Principles

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and clinical examination.

Quarterly assessment during the MD training should be based on following educational activities:

1. **Journal based / recent advances learning**
2. **Patient based /Laboratory or Skill based learning**
3. **Self directed learning and teaching**
4. **Departmental and interdepartmental learning activity**
5. **External and Outreach Activities / CMEs**

The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).

SUMMATIVE ASSESSMENT, ie., assessment at the end of training

The Postgraduate examination shall be in three parts:

The summative examination would be carried out as per the Rules given in POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.

The examination shall be in three parts:

1. **Thesis**

   Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and practical examination. A PG trainee shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. **Theory:**

   The examinations shall be organized on the basis of 'Grading'or 'Marking system' to evaluate and to certify PG trainee's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole. The examination for M.D. shall be held at the end of 3rd academic year. An academic term shall mean six month's training period.

   There shall be four papers each of three hours duration. These are:

2. **Theory Examination:** There shall be four theory papers.

Paper 1: Basic of Forensic Medicine, basic sciences and allied subjects.

Paper II: Clinical Forensic Medicine and medical jurisprudence.

Paper III: Forensic pathology and toxicology.

Paper IV: recent advances in Forensic Medicine, Forensic Psychiatry and Medical Toxicology, applied aspects of clinical disciplines and forensic sciences

3. **Practical Examination:**

Practical examination would be spread over two days and should be as follows:

Day 1

- **Clinical Cases** - (any 4) Age estimation, injury report, examination of an insane person to evaluate criminal/civil responsibility, examination of an intoxicated person, examination of a suspected case of poisoning (acute/chronic), disputed paternity case and sexual offences (accused and victim).
- Spots - (10) Histopathology slides, photographs, exhibit material, X-rays, mounted specimens, bones, poisons and weapons, charts etc.
- Toxicology Exercises - (02) Identification and details of common poisons or chemical tests etc.
- Laboratory Tests - (01) Identification of biological stains (Semen, Blood, Body fluids), Histopathology slides of medico legal relevance, gram and acid fast staining etc.

Day 2

- Postmortem Examination.
- Thesis/Seminar Presentation - For assessment of research/teaching ability
- Discussion on a case for expert opinion
- Grand Viva Voce.

Recommended Reading

Books (latest edition)

1. Subramanyam BV. Modi's Medical Jurisprudence and Toxicology. Butterworths India, New Delhi.
2. Nundy A. Principles of Forensic Medicine, New Central Book Agency Calcutta.
3. Lyon's Medical Jurisprudence for India. Delhi Law House, Delhi.
4. Reddy KSN. The Essentials of Forensic Medicine and Toxicology, K. Saguna Devi Publishers, Hyderabad.
5. Parikh CK. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology, CBS Publishers and Distributors, New Delhi.
6. Bernard Knight. Forensic Pathology. Arnold Publishers London.
7. + Di Maio VJ, Di Maio D. Forensic Pathology. CRC Press New York.
8. Camps FE. Gradwohl's legal Medicine. Bristol: John Wright and Sons Ltd.
9. American College of Legal Medicine Textbook Committee. Legal Medicine Mosby Publishers, USA.
10. Di Maio VJM. Gunshot Wounds, CRC Press USA.
11. Gordon I, Shapiro HA, Berson SD. Forensic Medicine - A Guide to Principle. Churchill Livingstone New York.
12. Mant AK. Taylor's Principles and Practice of Medical Jurisprudence, Churchill Livingstone, New York.
13. Parikh CK. Medicolegal Postmortems in India. Medical Publications, Bombay.
14. Gresham GA, Turner AF. Postmortem Procedurs An illustrated Text Book. Wolfe Medical Publications.
15. Ludwing J. Current Methods of Autopsy Practice. WB Saunders Company, London.
16. Gordon I, Turner R. Medical Jurisprudence E and S Livingstone Ltd. London.
17. Spitz WU, Fisher RS. Medico-legal Investigation of Death. Charles Thomas Publishers.
18. Schroeder O.C. Dental Jurisprudence. PSG Publishing Company, Littleton, Massachussetts.
19. Stark MM. A Physicians Guide to Clinical Forensic Medicine. Humana Press Totowa, New Jersey.
20. Olshakar JS, Jackson JS. Jackson MC, Smock WS. Forensic Emergency Medicine.

Lippincott William and Wilkins, Philadelphia.

21. Norah Rudin, Keith Inman. An introduction to Forensic DNA Analysis. CRC Press, London.
22. Robertson J, Ross AM, Burgoyne LA. DNA in Forensic Science - Theory, Technique and Application. Ellis Horwood, UK
23. Curry AS. Method of Forensic Science Vol. I-III. Inter-science Publishers London.
24. Clement JG, Ranson DL. Craniofacial Identification in Forensic Medicine. Arnold Publishers, London.
25. Sellier GK, Kneubuechl BP. Wound Ballistics and the scientific background. Elsevier, Amsterdam.
26. Bernard Knight. Simpson's Forensic Medicine. Arnold Publishers London.
27. Bernard Knight. Legal aspects of Medical Practice. Churchill Livingstone New York.
28. Gunn and Taylor. Forensic Psychiatry Clinical, Legal and Ethical issues. Butterworth Heinemann
29. G Gustafson. Forensic Odontology. Staples Press.
30. Gonzalez TA. Legal Medicine, Pathology and Toxicology- Appleton CenturyCrofts Inc. New York.
31. Hirsch CS, Morris RC, Moritz AR. Handbbok of Legal Medicine. CV Mosby Company London.
32. Lincoln PJ, Thomas J. Forensic DNA Profiling Protocols. Methods in Molecular Biology, Vol. 98, Humana Press, Totowa, New Jersey.
33. Lee HC, Gaensslen RE. DNA and other polymorphism in Forensic Science. Yearbook Medical Publishers, London.
34. Bergaus G, Brinkmann B, Rittner C. Staak M. (Eds.). DNA Technology and its Forensic Application. Springer- Verlag. Berlin
35. Beveridge A. Forensic Investigation of Explosions. Taylor and Francis USA.
36. Jay Dix. Colour Atlas of Forensic Pathology. CRC Press New York.
37. Bernard Knight, (ed.) The Estimation of Time since Death in the early Post Mortem Period. Arnold Publishers London.
38. Mant AK. Modern Trends in Forensic Medicine 1-3. Butterworth, London.
39. Luntz and Luntz. Handbook for Dental Identification. JB Lippincott. Toronto.
40. Buttler JM. Forensic DNA Typing. Academic Press New York.
41. Mason JK. Forensic Medicine- an illustrated reference. Chapmann and Hall, London.

42. Mason JK. Paediatric Forensic Medicine and Pathology. Chapmann and Hall, London.
43. Patnaik VP. MKR Krishnan's handbook of Forensic Medicine. Paras Publishing.
44. Lundquist Frank. Methods of Forensic science, vol. II, Interscience publishers.
45. Mehta HS. Medical, Law and Ethics in India. The Bombay Samachar Pvt. Ltd.
46. Gaur's firearms, Forensic Ballistics, Forensic Chemistry and Criminal Jurisprudence. Law Publishers (India) Pvt. Ltd. Allahabad.
47. Tedeschi Eckert. Forensic Medicine Vol. I -IV, WB Saunders Company.
48. Polson, Gee, Knight. The Essentials of Forensic Medicine. Pergomann Press, UK.
49. Redsicker DR. Forensic Photography, CRC Press USA.
50. Krogmann. Human skeleton in Forensic Medicine.
51. Abdullah Fateh. Handbook of Forensic Pathology
52. Simpson K. Taylor's Principle and Practice of Medical Jurisprudence. Vol. I-II.
53. Krishan Vij. Textbook of Forensic Medicine and Toxicology, Churchill Livingstone.
54. Pillay VV. Textbook of Forensic Medicine and Toxicology, Paras Publishing, Hyderabad.
55. Mukherjee JB. Textbook of Forensic Medicine and Toxicology, Arnold's Publishers, London.
56. Henry J, Wiseman H. Management of Poisoning. Published by WHO, UNEP and ILO.
57. Flanagan RJ et al. Basic Analytical Toxicology. Published by WHO, UNEP and ILO.
58. Guidelines for Poison Control. Published by WHO, UNEP and ILO
59. Genetics in Medicine - J. S. Thompson and M.W. Thompson.
60. Research - How to plan, speak and write about it - C. Hawkins and M. Sorgi.

Journals

03-05 international Journals and 02 national (all indexed) journals

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Annexure 1

Postgraduate Students Appraisal Form

Pre / Para /Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM..... TO .....

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journal based / recent advances learning				
2.	Patient based /Laboratory or Skill based learning				
3.	Self directed learning and teaching				
4.	Departmental and interdepartmental learning activity				
5.	External and Outreach Activities / CMEs				
6.	Thesis / Research work				
7.	Log Book Maintenance				

Publications Yes/ No

Remarks1

1REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

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Yenepoya Medical College Department of Forensic Medicine and Toxicology Pattern for

Formative Assessment for Post Graduates 1st Internal Assessment

Theory Examination:

10x10=100

Practical examination

	Subject	**Marks**
	Examination of Skeletal Remains	40
	Age Estimation Certificate	15
	Age X rays	15
	Toxicology Specimens	10
	Photographs	10
	Wet/Soft Specimens	10
	Grand Viva	100
	Total	**200**

2nd Internal Assessment

Theory Examination: 10X10 Marks=100 Marks

Practical Examination

	Subject	**Marks**
	Medicolegal Autopsy*/Fetal Autopsy/Dissection of Organs	80
	Examination of Skeletal Remains	40
	Wound Certificate	15
	Age Estimation Certificate	15
	Toxicology Specimens	10

	HPE Staining/Slide Identification	10
	Weapon Examination	10
	Photographs	10
	Wet/Soft Specimens	10
	Grand Viva	100
	Total	**300**

3rd Internal Assessment

Theory Examination: Paper I 10X10 Marks=100 Marks

Theory Examination: Paper II 10X10 Marks=100 Marks

Theory Examination: Paper III 10X10 Marks=100 Marks

Theory Examination: Paper IV 10X10 Marks=100 Marks

Practical Examination

Summative Evaluation

	Subject	**Marks**
	Medicolegal Autopsy*/Fetal Autopsy/Dissection of Organs	80
	Examination of Skeletal Remains	40
	Wound Certificate	15
	Age Estimation Certificate	15
	Examination of an accused in sexual assault/Potency Certificate	15
	Drunkenness/Fitness Certificate	15
	Expert Opinion	15
	Age X rays	15
	Micro-teaching/Pedagogy	10
	Toxicology Specimens	10

	HPE Staining/Slide Identification	10
	Blood Stains/Blood grouping	10
	Weapon Examination	10
	Photographs	10
	Wet/Soft Specimens	10
	Dissertation Discussion	20
	Grand Viva	100
	Total	**400**

Final PG University Examination MD/MS/DM/M.Ch. courses

For all Clinical and Prepara subjects

Distribution of marks for Theory examination

Item	**Marks**
No. of Theory Papers	4
Marks for each Theory Paper	100
Total marks for Theory Paper	**400**
Passing Minimum for Theory	200/400 (40% minimum in each paper) Theory - aggregate 50% (In addition, in each Theory paper a candidate has to secure minimum of 40%)

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MD-FORENSIC MEDICINE AND TOXICOLOGY

Long Case (120)	1.	Medicolegal Autopsy */ Fetal Autopsy/Dissecting of organs.	80
	2.	Examination of Skeletal Remains	40
Short Case (120)	1.	Wound Certificate	15
	2.	Age Estimation Certificate	15
	3.	Examination of an accused in sexual assault/Potency Certificate	15
	4.	Drunkenness/ Fitness Certificate	15
	5.	Expert Opinion	15
	6.	Age X rays	15
	7.	Micro-teaching/Pedagogy	10
	8.	Toxicology Specimens	10
	9.	HPE Staining/Slide Identification	10
OSPE Station (40)	1.	Blood Stains/ Blood Grouping	10
	2.	Weapon Examination	10
	3.	Photographs	10
	4.	Wet/ Soft Specimens	10
	Dissertation Discussion		20
VIVA VOCE	4 Station 25x4		100
TOTAL Marks			**400**

*Subject to availability of cases.

ANNEXURES

Theory Examination: Blueprint

Paper 1: Basic of Forensic Medicine, basic sciences and allied subjects.

Sl no	Discipline	Topic	Weightage	Marks allotted	No of Questions
1	General Principles	Principle of ballistics, serology, analytical toxicology, scene of crime, DNA profile, Blood grouping Brain Mapping, Narcoanalysis etc.	20%	20	02
2	Anatomy	Anatomy of parts and organs of the body which are important from the medico- legal aspect. Development of foetus. Comparative anatomy of male and female Body & skeleton.	20%	20	02
3	Physiology	Mechanism of phenomena that have medico-legal importance related to circulatory system, digestive system, respiratory system, haemopoietic system, central nervous system and reproductive system including pregnancy, sexual behavior etc	20%	20	02
4	Biochemistry	Mechanism of fluid and electrolyte balance, thermoregulation in newborn and adults, endocrine functions.	10%	10	01
5	Pathology	Pathophysiology of inflammation, wound healing, Shock, sudden death, Myocardial infarction, common infections and infestations of medico-legal significance, local and systemic response to trauma	20%	20	02
6	Dentistry & Radiology	Applied aspects of dentistry and radiology for medico-legal cases.	10%	10	01

Paper II: Clinical Forensic Medicine and medical jurisprudence.

Sl no	Discipline	Section	Topic	Weightage	Marks allotted	No of Questions
I	Clinical Forensic Medicine	1	Examination and Certification of Physical Assault, drunkenness, sexual offences	10%	10	01
		2	Age Estimation in medicolegal cases	10%	10	01
		3	Pregnancy, delivery, artificial insemination, abortion, sterilization, Impotence, AIDS and infectious disease.	10%	10	01
		4	Normal and abnormal sexual behavior and its medico-legal implications	10%	10	01
		5	Medico-legal problems related to clinical disciplines of medicine and allied subjects cases of torture and violation of human rights	10%	10	01
II	Medical Jurisprudence	6	Legal and medico-legal system in India	10%	10	01
		7	Medical ethics and the law in relation to medical practice, declarations, oath, etiquette, National Medical Commission, State Medical Council disciplinary control, rights and duties of a registered medical practitioners professional misconduct, consent, confidentiality, medical negligence (including all related issues) and Consumer Protection Act.	20%	20	02
		8	Medical ethics and law in relation to organ transplantation, biomedical human research and experimentation, human rights, cloning, genetic	20%	20	02

			engineering, human genome, artificial insemination, abortion, antenatal sex, foetus, genetics, euthanasia, women & children.			

Paper III: Forensic pathology and toxicology.

Sl no	Discipline	Section	Topic	Weightage	Marks allotted	No of Questions
I	Forensic Pathology	1	Identification of human remains	10%	10	01
		2	Mechanical and regional injuries, ballistics and wound ballistics, electrical injuries, lightening, neglect and starvation, thermal injuries, deaths associated with sexual offences, pregnancy, delivery, abortion, child abuse, dysbarism and barotraumas.	30%	30	03
		3	Asphyxia, classification, medicolegal aspects and postmortem findings of different types of Asphyxial deaths	10%	10	01
		4	Identify the signs of death, postmortem changes, and time since death.	10%	10	01
II	Toxicology	5	Law relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.	10%	10	01
		6	Principles of pharmacokinetics and pharmacodynamics of poisonous substances, Diagnose poisoning cases and apply principles of general management	10%	10	01
		7	Describe the signs, symptoms, diagnosis and management of common acute and chronic poisoning	20%	20	02

Paper IV: recent advances in Forensic Medicine, Forensic Psychiatry and Medical Toxicology, applied aspects of clinical disciplines and forensic sciences

Sl no	Discipline	Section	Topic	Weightage	Marks allotted	No of Questions
I	Forensic Psychiatry	1	Medico-legal aspects of Psychiatry and mental health, Medico-legal aspects of drug addiction.	10%	10	01
		2	Civil and criminal responsibilities of an insane person	20%	20	02
II	Applied aspects and recent advances	3	Amendments made to Medical Law and Acts in India	10%	10	01
		4	Current developments in the field of toxicology	20%	20	02
		5	Recent advances in the field of forensic medicine, forensic science and Law.	40%	40	04

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Model Question Papers

M.D. Degree Examination April 2025

Time:3 Hours Total marks 100

Forensic Medicine

Paper- I

(Basic of Forensic Medicine, basic sciences and & allied subjects)

Your answer shall be specific to the questions asked

Draw neat labelled diagrams wherever necessary

Answer all questions

Short Essay (10x10=100 Marks)

1. Discuss the anatomy of larynx and describe medico legal significance of compression of neck.
2. Discuss the forensic anatomy of base of skull.
3. Male sexual response.
4. Physiology of digestion
5. Secretors.
6. Narcoanalysis and its medicolegal importance.
7. Describe thermoregulation of newborn.
8. Pathophysiology of shock.
9. Describe pathophysiology of wound healing.
10. Mandibular canine index.

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M.D. Degree Examination, April 2025

Time:3 Hours Total marks 100

Forensic Medicine

Paper II

(Clinical Forensic Medicine, Medical Jurisprudence)

Your answer shall be specific to the questions asked

Draw neat labelled diagrams wherever necessary

Short essay (10x10=100 Marks)

1. Define the term medical negligence. How will you prove such cases? What are the defenses available to a doctor in a case of alleged negligence against him?
2. Define drunkenness. Describe the importance of documentation and preparation of medicolegal report of an individual with history of alcohol consumption.
3. What are the medicolegal implications of criminal abortion. A 24 year old married woman underwent criminal abortion and was brought dead to causality. Explain the different procedure involved in managing this case and how will you arrive at opinion as to cause of death.
4. Define consent in medical practice. What are the different types of consent?
5. Declaration of Helsinki.
6. Functions of National Human rights commission.
7. Vicarious liability and its related doctrines.
8. Critical analysis of consumer protection act 2019.
9. Rights and privileges of a patient.
10. The process of investigation for potency.

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M.D. Degree Examination, April 2025

Time:3 Hours Total marks 100

Forensic Medicine

Paper-III

(Forensic pathology and toxicology)

Your answer shall be specific to the questions asked

Draw neat labelled diagrams wherever necessary

Answer all questions

Short essay (10x10=100 Marks)

1. What is embolism, describe its pathophysiology and explain the lesions caused by various embolisms.
2. Process of pelvis examination and report writing in case of exhumed skeletal remains examination.
3. Wound ballistic principles of a rifled firearm. How do they help in detection of crime?
4. Dating of patchy meningitis interna haemorregica
5. Pathophysiology of café coronary.
6. Microbiology of cadaver.
7. NDPS Act, 2021.
8. Working principle and limitations of HPLC.
9. Mercury poisoning and its medicolegal importance.
10. Employee's compensation act 2009.

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M.D. Degree Examination, April 2025

Time:3 Hours Total marks 100

Forensic Medicine

Paper -IV

(Recent advances in Forensic Medicine, Forensic Psychiatry and Medical Toxicology, applied aspects of clinical disciplines and forensic sciences)

Your answer shall be specific to the questions asked

Draw neat labelled diagrams wherever necessary

Answer all questions

Short essay (10x10=100 Marks)

1. MedLEaPR.
2. iRAD and eDAR
3. Drunkometer.
4. Softwares used in virtopsy and its interpretations regarding various findings in medicolegal case.
5. Civil and criminal responsibilities of mentally ill person.
6. Munchausen syndrome and Munchausen by Proxy.
7. Drug dependence and its medicolegal implications.
8. Describe methods of drug elimination.
9. Mental Healthcare Act, 2017.
10. The drug and magic remedies Act, 1954.

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Postgraduate Students Appraisal Form

Pre / Para /Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM……TO……

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journal based / recent advances learning				
2.	Patient based /Laboratory or Skill based learning				
3.	Self directed learning				
4.	Departmental and interdepartmental learning activity				
5.	External and Outreach				
6.	Thesis / Research work				
7.	Log Book Maintenance				

Publications **Yes/ No**

Remarks* _____

***REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.**

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