



**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**

**BACHELOR OF SCIENCE EMERGENCY MEDICINE TECHNOLOGY**

**(CURRICULUM - EFFECTIVE FROM 2020-21)**

**ATTESTED**

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Ref: No. Y/REG/ACA/38-ACM/2020

14.05.2020

**NOTIFICATION – 38-ACM/12 /2020 dtd. 14.05.2020**

Sub: Revised curriculum of the existing B.Sc. (Tech) programmes and Starting of additional programmes under the Faculty of Allied and Healthcare Professions

Ref: Resolution of the Academic council at its 38<sup>th</sup> meeting held on 27.04.2020, vide agenda - 23

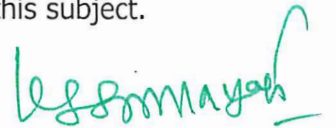
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The Academic Council at its 38<sup>th</sup> meeting held on 27.04.2020 and subsequently the Board of Management at its 49<sup>th</sup> meeting held on 30.04.2020 have resolved to approve the revised curricula and regulations of existing 08 B.Sc. Technology Programmes (Anaesthesia & O.T. Technology, Renal Dialysis Technology, Respiratory Care Technology, Medical Laboratory Technology, Medical Imaging Technology, Cardio Vascular Technology, Perfusion Technology, Optometry Technology) and starting of 04 new programmes under the Faculty of Allied & Healthcare Professions

1. B.Sc. in Physician Assistant
2. B.Sc. in Clinical Psychology
3. B.Sc. in Emergency Medicine Technology
4. B.Sc. in Neuro Science Technology

All these programmes shall follow Choice Based Credit System.

This notification will supersede all the earlier notifications issued on this subject.



**REGISTRAR**  
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CC to:

1. Dean, Faculty of Allied and Healthcare Professions
2. Controller of Examinations
3. File copy

## TABLE OF CONTENTS

Sl.No.	Title of Contents
1.	Preamble
2.	Programme Outcome
3.	Durations of the Programme Expected skill to be acquired by the end of the programme
4.	Semester
5.	Medium for Instruction
6.	Eligibility for admission
7.	Semester System and Choice Based Credit System
8.	Definition of Keys
9.	Types of Courses CBCS
10.	Assigning total credit hours per program
11.	Assigning total credit for a program
12.	Evaluation of Answer Scripts
13.	Attendance
14.	Scheme of examination
15.	Evaluation of Answer Script
16.	Classification of Successful candidates
17.	Declaration of class
18	Internship
19.	Eligibility for the award of degree
20.	Maximum period for Completion of Program
21.	Minimum for a pass
22.	Re- entry after break of the study
23.	Program structure

Yenepoya (Deemed to be University)  
Regulations & curriculum for B.Sc. Emergency Medicine Technology  
under Choice Based Credit System.

## **1. Preamble**

Health care sector has become one of the largest employment generation sectors in India and abroad. Rapidly changing and expanding horizon of the health care sector demands formal training programs in all its allied areas. Advanced complex instrumentation & equipment require technologists not only to operate but also to care & maintain these instruments and equipment. These technologists should possess a strong scientific foundation to be able to perform these tasks at a much higher level than the traditionally trained technicians of the past used to perform. The students who are trained in the technological aspects of medical care with a good scientific foundation will be in a position to competently assist the Physician or Surgeon. Hence to prepare the students to meet the demands of the healthcare sector and in accordance with Ministry of Human Resource Development (HRD), Govt. of India education system, Choice based Credit system is introduced from the academic year 2020- 21 onwards.

B.Sc. Emergency Medicine Technology is undergraduate program in the field of health care offered by Yenepoya Deemed to be University.

All the initial resuscitation will be done by the Emergency Medical team comprising of Emergency physician and Emergency Paramedics. This program offers mainly towards the initial resuscitation of patient who is in pre hospital as well as in Emergency room. Emergency paramedics are the backbone of the healthcare system in most developed countries. The objective of the program is to develop a pool of trained Emergency Paramedics. Emergency paramedics is a field of practice based on the knowledge and skills required for the prevention, diagnosis and management of the acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioral disorders in pre hospital as well as in hospital. It is a specialty in which time is critical. As the number of trauma and natural disasters are increasing day by day Emergency Medicine has become the need of the hour.

Choice based Credit System is a flexible system of learning. The distinguishing features of CBCS are following:

- It permits students to learn at their own pace.
- Choose Electives from a wide range of Elective courses offered by the other departments/university.
- Undergo additional courses acquire more than the required number of credits.
- Adopt an Inter-disciplinary and Intra-disciplinary approach in learning.
- Make best use of the available expertise of the faculty across the departments or disciplines.
- Has an inbuilt evaluation system to assess the analytical and creative skills of students in addition to the conventional domain knowledge assessment pattern.

## **2. Programme Outcome:**

PO 1	At the end of the Program student should be able to  Demonstrate knowledge about emergency medical care services
PO 2	Demonstrate the ability to perform clinical skills essential in providing basic emergency medical care services
PO 3	Ability to work as part of a multidisciplinary team during Emergency.
PO 4	Demonstrate setting of an ambulance for dealing with emergency situations Practice infection control measures
PO 5	Demonstrate safe and efficient transferring and ambulation techniques
PO 6	Demonstrate techniques to maintain the personal hygiene needs of oneself and the patient

- PO 7 Demonstrate good communication, communicate accurately and appropriately in the role of Emergency Medical technician
- PO 8 Ability to stay calm and make the right decisions in adverse conditions.
- PO 9 Be the active member of the disaster management team
- PO 10 Administer various drugs in emergencies and as a routine
- PO 11 Patient Assessment: General Examination: Vitals, ECG Recording.
- PO 12 Able to manage injuries or sudden illnesses by applying a variety of pre-hospital simple and advanced treatments or Surgical procedures.
- PO 13 BCLS/BTLS & Use of defibrillator
- PO 14 Equipment handling and medication preparation.
- PO 15 ACLS/ATLS protocols
- PO 16 Airway management.
- PO 17 Extrication from automobiles & lifting and moving patients
- PO 18 Transports the patient to ambulance & lifting and moving patients
- PO 19 Immobilize: spine board etc. & patient monitoring during Transfer.

### **3. Duration of the Programme:**

The duration of the programme shall extend over 8 semesters (three academic years with one year internship) each semester comprising minimum of 15 weeks with the minimum of 90 actual working days of instruction in each semester. The successful completion of the Undergraduate program, along with internship as applicable will lead to Bachelor's degree in Emergency Medicine Technology (B.Sc. EMT).

### **4. Semester:**

An academic year shall consist of two semesters;

Odd Semester 1 <sup>st</sup> , 3 <sup>rd</sup> , 5 <sup>th</sup> & 7 <sup>th</sup>	July/August to December/January
Even semester 2 <sup>nd</sup> , 4 <sup>th</sup> , 6 <sup>th</sup> & 8 <sup>th</sup>	January/February to June/July

### **5. Medium of Instructions:**

The medium of instruction and examination shall be English.

### **6. Eligibility for admission:**

To be eligible for admission in B. Sc Emergency Medicine Technology, a candidate should have passed two-years Pre University examination/ Pre Degree examination/ two years after ten years of schooling or its equivalent as recognized by the Yenepoya(Deemed to be) University with Physics, Chemistry and Biology as principal courses of study.

Candidate needs to secure 40% or above marks in the qualifying examination to be eligible for admission. For SC/ST/OBC candidates minimum marks required in the qualifying exam is 35% marks.

## 7. Semester System and Choice Based Credit System:

The semester system accelerates the teaching-learning process. The credit-based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice-based credit system provides a cafeteria 'type approach in which the students can take courses of their choice, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.

## 8. Definition of Key words:

- a. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
- b. **Choice Based Credit System:** The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).
- c. **Course:** Usually referred to, as 'papers' is a component of a programme. The courses shall define learning objectives and learning outcomes. A course shall comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
- d. **Credits:** Credit defines the quantum of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, normally in each of the courses, credits will be assigned on the basis of the number of lectures/tutorial laboratory work and other forms of learning required, to complete the course contents in a 15-20week schedule: One credit =1 hour of lecture per week/ two hours of Laboratory or practical/three hours of clinical rotation, field work/posting. All courses need not carry the same credits.



	<b>Lecture -</b>	<b>Tutorial -</b>	<b>Practical</b>	<b>Clinical</b>
	<b>L</b>	<b>T</b>	<b>P</b>	<b>Training/ Rotation CT/CR</b>
1 Credit	1 Hour	1 Hour	2 Hours	3-5 Hours

**Programme:** An educational program leading to award of a degree, diploma or certificate.

- e. **Grade Point:** It is a numerical weight allotted to each letter grade on a 10-point scale.
- f. **Credit Point:** It is the product of grade point and number of credits for a course.
- g. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
- h. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters: O,A+, A, B+, B, C, P, F,AB.
- i. **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
- j. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every seme-

ster. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester.

- k. **Semester System and Choice Based Credit System:** The semester system accelerates the teaching-learning process. The credit-based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice-based credit system provides a cafeteria 'type approach in which the students can take courses of their choice, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.

## 9. Types of Courses

Courses in a programme may be of three kinds:

- Core Course
- Ability Enhancement Compulsory Course (Foundation course)
- Elective Course

**9.1 Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course. This is the course which is to be compulsorily studied by a student as a core requirement to complete the program of study in a said discipline.

**9.2 Ability Enhancement Compulsory Courses (AECC):** Ability enhancement compulsory courses (AECC) are the courses based upon the content that leads to knowledge enhancement.

Example:

1. Environmental science
2. English/ MIL communication

These are mandatory for all disciplines.

### 9.3 Elective Course (EC):

9.3.1 Generic elective

9.3.2 Skill enhancement course

9.3.3 Self-learning courses (SWAYAM/MOOC)

9.3.4 Discipline Specific Elective courses

**9. 3.1 Generic elective:** An Elective Course chosen from pool of courses which are unrelated from unrelated discipline/subject with intention to seek exposure beyond disciplines of choice. The purpose of this is to offer the students the option to explore disciplines of interest beyond the choices they make in core and discipline specific elective courses.

**9. 3.2: Skill enhancement course:** SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies and skills. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

**9. 3.3: Self – learning course:** with respect to- UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2021. New Delhi, the 25<sup>th</sup> March, 2021. Vide No.F.1-100/2016 (MOOCs/e-content)

The List of MOOCS (Massive open online courses) and SWAYAM (Study webs of active learning for young aspiring minds) will be finalized by the faculty of allied health professions as per subject to time-to-time UGC notification and will be submitted to the academic council of the DU. Yenepoya (Deemed to be university) shall adopt the regulation of UGC governing MOOCS/ SWAYAM courses as amended from time to time.

The college/ department will designate course coordinator/facilitator to guide the students throughout the course to facilitate the completion of the chosen course.

### **9.3.3.1 Evaluation and Certification of MOOCs:**

Evaluation will be based on predefined norms and parameters and announced in the overview of the Course at the time of offering the course. Formative continuous online assessments and end of course proctored exams shall be completed by the student.

The Yenepoya (Deemed to be) University incorporate the marks/grade obtained by the student, as communicated by the Host Institution through the PI of the SWAYAM course in the marks sheet of the student that counts for final award of the degree by the University.

## **2. Credit Mobility of MOOCs:**

The Yenepoya (Deemed to be) University will give the equivalent credit weightage to the students for the credits earned through online learning courses through SWAYAM platform in the credit plan of the program.

In case a student fails to complete the MOOCs course He/ She may be allowed to complete the course requirements by registering for another course online in subsequent semester or opt for a course offered at this Yenepoya (Deemed to be) University.

## **10. Assigning Credit Hours per Course**

While there is flexibility for the departments in allocation of credits to various courses offered, the general formula shall be:

- Every Core course shall be restricted to a maximum of 4 credits.
- The elective course offered by the Yenepoya (Deemed to be) University shall be restricted to a maximum of 2 credits.
- A candidate shall compulsorily complete total Twelve Credits of Elective courses

- These courses shall be selected either from the Generic Electives, Skill enhancement courses offered by Yenepoya (Deemed to be) university or from the SWAYAM/MOOC/NPTEL courses notified by the UGC time to time and enlisted by the faculty of Allied Health Care Professions. A Candidate shall have freedom to choose the courses of once own choice and at their own pace from the external online platform (SWAYAM/MOOC) or a mix of courses offered by Yenepoya (Deemed to be) University but, require to complete before appearing the Sixth semester end examination.
- A candidate who is desirous to add more credits shall be permitted to do so during the academic duration. Extra credits earned by a candidate shall be included in the marks card on submission of course completion certificate. However, it shall not be considered for awarding the Grade in the UG programme.
- The credits assigned to the course is indicated as L: T: P format. For example, for a 4 credit course format could be: 4:0:0 or 1:2:1 or 3:1:0 or 0:0:4etc.

### **11. Assigning Total Credits for a Programme:**

The UGC, in its notification No.F.1-1/2015 (Sec.) dated 10/4/15 has provided a set of “Model curricula and syllabi for CBCS programmes. In conformation with this notification, at Yenepoya (Deemed to be University), for UG programs with duration of 3years study period or 6 semesters, the total credits shall be a maximum of 140 credits and for the UG programme with duration of 4 years study period or 8 semesters, the total credits shall be a maximum of 167 credits

## 12. CBCS Program Coding System

The coding system shall be in the consonance with the system followed by the office of the controller of examination. Presently the following coding pattern is followed.

12.1 First two letters describe the faculty name followed by level of programme (UG – 01; PG – 02) and two letters represent the programme.

12.2 Course code shall have prefix denoting semester number followed by an alphabet of respective type of courses such as C = Core, AECC= Ability Enhancement Compulsory, GE=Generic Elective, SE= Skill Enhancement, SL = Self -Learning, P=Practical followed by numbers denoting number of courses taught-

1st SEM: 1C1, 1C2, 1C3, 1AECC1, 1AECC2, GE1/SE1/SL1 1P1 etc.

2nd SEM: 2C1, 2C2, 2AECC1, 2AECC2, GE2/SE2/SL2, 2P1,etc.

3rd SEM: 3C1, 3C2, 3AECC1, 3AECC2, GE3/SE3/SL3, 3P1, 3P2etc.

4th SEM: 4C1, 4C2, 4C3, 4P1,4P2 , GE4/SE4/SL4etc.

5th SEM: 5C1, 5C2, 5GE1/5SE1, 5P1, 5P2, 5P3,GE5/SE5/SL5etc.

6th SEM:6C1, 6C2, 6GE1/6SE1, 6P1, 6P2, 6P, GE6/SE6/SL6etc.

7th SEM:7C1

8th SEM:8C1

## 13. Attendance :

13.1 Each course (theory, practical, clinical etc.) shall be treated as an independent unit for the purpose of attendance. Candidates having minimum 80% attendance in each of the Courses can only qualify to appear for the Semester End Examination. The Candidates with less than 80% of attendance shall be required to repeat that Course by attending the semester.

13.2 There shall be no provision for condemnation of shortage of attendance.

13.3 For SWAYAM/MOOC/NPTEL it shall be as per the regulations governing the courses of implementing authority.

13.4 The HOD/Course Coordinator through the Dean of Faculties shall announce the names of the candidates who will not be eligible to take the Semester End- Examinations (SEE) in the various courses and send a copy of the same to the Controller of Examinations (COE) Office. Registrations of such candidates for those courses shall be treated as cancelled.

## 14 Scheme of examination

- 14.1 Evaluation of a course shall be done based on continuous internal assessment (CIA) mode followed by semester end university examination (SEE) for each course.
- 14.2 The components of CIA (Continuous Internal Assessment) may include 2 internal assessment tests, assignments and assessment of conduct/discipline.
- 14.3 The marks for CIA shall be 40% and SEE shall be 60%.
- 14.4 There shall be no minimum marks for CIA for a pass, but the minimum marks for pass per course shall be 50% CIA and SEE together
- 14.5 There shall be examinations at the end of each semester ordinarily during December/January for odd (1<sup>st</sup> & 3<sup>rd</sup>) semesters and during June/July for even (2<sup>nd</sup> & 4<sup>th</sup>) semesters. The SEE for 5<sup>th</sup> & 6<sup>th</sup> Semester will be held during December/ Jan and June/ July of each year
- 14.6 The SEE duration shall be three hours.
- 14.7 The question paper pattern shall be decided by the Board of Studies (BOS) of the respective departments.

### Internal assessment format per course (distribution of marks)

Internal Assessment Components	Maximum Marks
Two IA tests	20
Assignment	10
Conduct/discipline	10
<b>Total Marks</b>	<b>40</b>

First Internal Assessment shall be held in the 6<sup>th</sup> week of the semester and the second internal examination will be held one month before the semester end university examination

### Question Paper Pattern for core course SEE

SUBJECTS HAVING MAXIMUM MARKS = 60					Duration
Type of question	Number of questions	To be Answered	Marks for each question	Total	
LONG ESSAY TYPE	02	01	10	10	180 minutes
SHORT ESSAY TYPE	10	08	05	40	
SHORT ANSWERS	07	05	02	10	
<b>Total</b>				<b>60</b>	

### Question Paper Pattern for AECC SEE

SUBJECTS HAVING MAXIMUM MARKS = 40					Duration
Type of question	Number of questions	To be Answered	Marks for each question	Total	
LONG ESSAY TYPE	02	01	10	10	90 minutes
SHORT ESSAY TYPE	05	03	05	15	
SHORT ANSWERS	07	05	03	15	
<b>Total</b>				<b>40</b>	

### Practical examination

Sl.NO	Components	Marks
1	Spotters	20
2	Case scenario/Stations	20
3	Viva Voice	20
Total Marks		60



## **PARTICULARS OF PRACTICAL, VIVA-VOCE**

- Practical examination will be aimed at examination of clinical skills and competence of the candidates for undertaking independent work as a specialist.
- Viva- Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence & oral communication skills.
- OSCE/OSPE- shall have minimum of 4 stations.

### **15. Evaluation of Answer Scripts**

15.1 Each theory examination shall have single evaluation. There shall be provision for re-evaluation on a payment of a fee. An external examiner shall value the paper, if the difference is more than 15% of previous marks the answer script shall be sent for third evaluation. In such an event, the average of the best two out of the three scores will be taken as the final score.

15.2 Practical examination shall be jointly conducted and evaluated by one internal examiner and one external examiner.

### **16. Classification of Successful candidates:**

The results of successful candidates at the end of each semester shall be declared in terms of Grade Point Average (GPA) and Alpha-Sign Grade. The results at the end of the sixth semester shall be classified on the basis of the Cumulative Grade Point Average (CGPA) obtained in all the six semesters and the corresponding overall alpha sign grade.

#### **16.1 Letter Grades and Grade Points:**

16.1.1 The Deemed to be University would be following the absolute grading system, where the marks are compounded to grades based on pre-determined class intervals.

16.1.2 The UGC recommended 10-point grading system with the following letter grades are given below:

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B(Above Average)	6
C (Average)	5
P (Pass)	4
F (Fail)/ RA (Reappear)	0
Ab (Absent)	0
Not Eligible (NC) detained	0

16.1.3 A student obtaining Grade RA/ Ab shall be considered failed and will be required to reappear in the end semester examination.

## 16.2 The Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester.

For example, if a student takes five (Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student's grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C1G1 + C2G2 + C3G3 + C4G4 + C5G5}{C1 + C2 + C3 + C4 + C5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a student has a F or ABS grade in program 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C1G1 + C2G2 + C3G3 + C4 * \text{ZERO} + C5G5}{C1 + C2 + C3 + C4 + C5}$$

### 16.3 Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VI semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VI semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the program(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C1S1 + C2S2 + C3S3 + C4S4 + C5S5 + C6S6}{C1 + C2 + C3 + C4 + C5 + C6}$$

where C1, C2, C3,.... is the total number of credits for semester I,II,III,.... and S1, S2, S3.... is the SGPA of semester I,II,III,....

#### Calculation of GPA & CGPA: An example (1st semester)

Program Code	Course	Credits (a)	Grade Obtained	Credit Value (b)	Grade Points (axb)
	Course 1	4	B	8	32
	Course 2	4	B	8	32
	Course 3	4	O	10	40
	Course 4	2	C	7	14
	Course 5	2	A	9	18
	Total	16	-	-	136

1st Semester GPA = Total Grade Points / Total Credits = 136 / 16 = 8.5  
 2nd Semester GPA = 7 with respect to 18 Credits  
 Then 1st Year CGPA = (8.5 x 16) + (7 x 18) / 16 + 18 = 7.7

## **17. Declaration of Class**

The class shall be awarded on the basis of Cumulative marks scored in all the Courses

First Class with Distinction= Aggregate Marks 75% and above

First Class = Aggregate Marks 60 to 74.9%

Second Class = Aggregate Marks 50 to 59.9%

### **17.1 Promotion Criteria**

- The students are allowed to carry over any number of courses till sixth semester. But student is eligible to appear for the End semester exam of sixth semester if he/she has cleared all the Courses both Core and AECC of first, second, third & fourth semesters. If student has any pending course of first to fourth semesters he/she is not eligible to appear for the end semester exam of the sixth semester. However, Fifth semester courses are allowed to club with sixth semester end examination. But, all the Core courses and AECC Courses of first to fourth semester should be completed to be eligible for 6th end semester exam.
- Candidate should also complete 12 credits of elective course to be eligible for the 6<sup>th</sup>(in case of 3year program) end Semester Examination.
- Candidate should clear all Courses (Core, AECC & Elective courses) of all the semester, to be eligible to start the one year of mandatory internship.
- A fail in any one Course will mean the candidate has to reappear for the exam in that Course only.
- A candidate who passes the semester examinations in parts is eligible for only CGPA and letter grade but not for Class/ ranking/award/medal from the University.

## **18. Internship**

A candidate has to mandatorily complete 1 year (2 semesters) of internship. The total credit per semester is 18 and for two semesters it is 36.

The internship time period provides the candidate the opportunity to develop confidence and increased skill in simulation and treatment delivery. Candidate will demonstrate competence in basic and intermediate procedures and will observe the advanced and specialized treatment procedures. The candidate will complete the clinical training by practicing all the skills learned in classroom and clinical instruction. The candidate is expected to work for minimum 8 hours per day and this may be more depending on the need and the healthcare setting.

## 18.1 Eligibility

A candidate should have passed in all the courses (Core, AECC, and Electives) amounting to 133 number of credits before entering in to internship.

## 19 Eligibility for the award of Degree

A candidate shall have passed in all the Courses of all six semesters and should have successfully completed one year of mandatory internship (02 semesters) as required for the programme.

## 20 Maximum Period for Completion of Programme:

A candidate shall complete Six semesters (Three Years) programme within Six years from the date of admission. Hence, the maximum period for completion of the programme is seven years.

## 21 Minimum for a pass:

21.1 A candidate shall be declared to have passed the UG programme if he/she secures at least CGPA of 4.0 (Course Alpha-Sign Grade P) in the aggregate of both internal assessment and semester end examination marks.

21.2 The candidates who pass all the semester examinations in the first attempts in Three years are eligible for ranks provided they secure at least a CGPA of 8.0 (at least Alpha-Sign Grade A).

21.3 The results of the candidates who have passed the sixth semester examination but not passed the lower semester examinations shall be declared as NCL (Not Completed Lower semester examinations). Such candidates shall be eligible for the degree only after completion of all the lower semester examinations.

21.4 A candidate who passes the semester examinations in parts is eligible for only CGPA and Alpha-Sign Grade but not for ranking.

21.5 There shall be no minimum in respect of internal assessment and viva-voce marks.

## 22 Re-Entry after Break of the study:

22.1 Candidates admitted to a program abstaining for more than 3 months must seek readmission into the appropriate semester.

22.2 The candidate shall follow the syllabus in vogue (currently approved/is being followed) for the program.

22.3 All re-admissions of candidates are subject to the approval of the University.

## 23. Program Structure

Semester I

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SEE		L	T	P	
1	Core	Anatomy	40	60	100	4	-	-	4
2	Core	Physiology	40	60	100	4	-	-	4
3	Core	Biochemistry	40	60	100	4	-	-	4
4	Core	Introduction to Emergency Service -1	40	60	100	3	-	-	3
5	AECC	English & Communication	10	40	50	2	-	-	2
6	AECC	Constitution of India	10	40	50	2	-	-	2
Total					600	19			19

Note: Of the total available 36 hours per week for teaching learning processes, 19 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/Value added courses/Extracurricular activities etc.

## Semester II

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SEE		L	T	P	
1	Core	General pathology	40	60	100	4	-	-	4
2	Core	Microbiology	40	60	100	4	-	-	4
3	Core	Emergency Department Equipments -1	40	60	100	3	-	-	3
4	AECC	Environmental Studies	10	40	50	2	-	-	2
5	AECC	Health Care	10	40	50	2	-	-	2
6	AECC	Medical Ethics	10	40	50	1	-	-	1
7	AECC	Sociology	10	40	50	1	-	-	1
Total					500	17			17

Note: Of the total available 36 hours per week for teaching learning processes, 17 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/Value added courses/Extracurricular activities etc.

Semester III

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SE E		L	T	P	
1	Core	Systemic Pathology	40	60	100	2	-	2	3
2	Core	Applied Microbiology	40	60	100	2	-	2	3
3	Core	General Pharmacology	40	60	100	4	-	-	4
4	Core	Patient Assessment - Medical	40	60	100	3	-	-	3
4	Core	Patient Assessment - Medical - Practical	40	60	100		-	6	3
5	Core	Introduction to Emergency Service -2	40	60	100	3	-	-	3
5	Core	Introduction to Emergency Service -2- Practical	40	60	100		-	6	3
6	AECC	Kannada	10	40	50	2	-	-	2
Total					550				24

Note: Of the total available 36 hours per week for teaching learning processes, 32 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/Value added courses/Extracurricular activities etc.



Semester IV

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SEE		L	T	P	
1	Core	Emergency Department Equipment -2	40	60	100	3		-	3
1	Core	Emergency Department Equipment -2 - Practical	40	60	100			6	3
2	Core	Medical Emergencies 1	40	60	100	3	-	-	3
2	Core	Medical Emergencies 1 - Practical	40	60	100		-	6	3
3	Core	Patient Assessment - Trauma	40	60	100	3	-	-	3
3	Core	Patient Assessment - Trauma - Practical	40	60	100	-	-	6	3
5	AECC	Human Rights and Gender Equity	10	40	50	2	-	-	2
6	AECC	Biostatistics	10	40	50	2	-	-	2
Total					500				22

Note: Of the total available 36 hours per week for teaching learning processes, 31 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/ Value added courses/Extracurricular activities etc.

Semester V

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			I A	SEE		L	T	P	
1	Core	Trauma 1	40	60	100	3	-	-	3
1	Core	Trauma 1 – Practical	40	60	100		-	6	3
2	Core	Emergency Obstetrics & Neonatal Care	40	60	100	3	-	-	3
2	Core	Emergency Obstetrics & Neonatal Care - Practical	40	60	100		-	6	3
3	Core	Paediatric, Geriatric, & Psychiatric Emergencies	40	60	100	3	-	-	3
4	Core	Paediatric, Geriatric, & Psychiatric Emergencies - Practical	40	60	100	-	-	6	3
Total					500				18

Note: Of the total available 36 hours per week for teaching learning processes, 27 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/Value added courses/Extracurricular activities etc.

Semester VI

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SEE		L	T	P	
1	Core	Medical Emergencies 2	40	60	100	3	-	-	3
1	Core	Medical Emergencies 2 Practical	40	60	100	-	-	6	3
2	Core	Disaster Management	40	60	100	3	-	-	3
2	Core	Disaster Management - Practical	40	60	100	-	-	6	3
3	Core	Trauma 2	40	60	100	3	-	-	3
4	Core	Trauma 2- Practical	40	60	100	-	-	6	3
Total					500				18

Note: Of the total available 36 hours per week for teaching learning processes, 27 hours per week is dedicated to Core and AECC courses. Remaining Hours are available for Electives/Value added courses/ extracurricular activities etc.

Semester VII

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per week			Credits
			IA	SEE		L	T	P	
1	Core	Internship I	40	60	100	-	-	6	1
Total					200				18

## Semester VIII

Sl. No	Category	Course Name	Max Marks		Total Marks	Hours Per day			Credits
			IA	SEE		L	T	P	
1	Core	Internship II	40	60	100	-	-	6	1
Total					100				18

<b>Total credit</b>	<b>119</b>
<b>Elective</b>	<b>12</b>
<b>Internship</b>	<b>36</b>
<b>Total Credit of the program</b>	<b>167</b>

# **SEMESTER I**

## **ANATOMY**

**Course: Core**

**Credits: 04**

**Number of hours: 60 hours**

### **Course objectives:**

- Identify and locate each of the body systems to apply anatomical knowledge to perform minor technical procedural skills.
- Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
- Describe the functions of each body system
- Discuss the interrelationship of systems in maintaining homeostasis.
- Know the anatomical basis of disease and injury

### **Course Content:**

#### **Unit I: Introduction: Human body as a whole**

**2 Hours**

- Definition of anatomy and its divisions. Terms of location, positions and planes. Cell and its organelles.
- Epithelium: definition, classification, describe with examples, function. Glands: classification, describe serous & mucous glands with examples. Basic tissues: classification with examples
- Demonstration: Histology of types of epithelium. Histology of serous, mucous & mixed salivary gland.

#### **Unit II: Locomotion and support**

**12 hours**

- Bone: classification, names of bone cells, parts of long bone, microscopy of compact bone, names of all bones, vertebral column, inter-vertebral disc, fontanelles of fetal skull.

- Joints: classification of joints with examples, synovial joint (in detail for radiology). Muscular system: classification of muscular tissue & histology, names of muscles of the body.
- Demonstration: Bones & joints. Histology of compact bone (TS & LS). Demonstration of all muscles of the body. Histology of skeletal, smooth & cardiac muscle (TS & LS). Histology of the 3 types of cartilage. Demo of all bones showing parts, radiographs of normal.

### **Unit III: Cardiovascular system**

**8 hours**

- Heart: size, location, chambers, exterior & interior, blood supply of heart. Systemic & pulmonary circulation, branches of aorta, common carotid artery, subclavian artery, axillary artery, brachial artery, superficial palmar arch, femoral artery, internal iliac artery, peripheral pulse, inferior vena cava, portal vein, Porto-systemic anastomosis, great saphenous vein, Dural venous sinuses. Lymphatic system: cisterna chyli & thoracic duct, histology of lymphatic tissues, names of regional lymphatics, axillary and inguinal lymph nodes in brief
- Demonstration of heart and vessels in the body. Histology of large artery, medium sized artery & vein, large vein. Histology of lymph node, spleen, tonsil & thymus. Normal chest radiograph showing heart shadows. Normal angiograms

### **Unit IV: Gastro-intestinal system**

**8 hours**

- Parts of GIT, oral cavity, lip, tongue (with histology), tonsil, dentition, pharynx, salivary glands, Waldeyer's ring, oesophagus, stomach, small and large intestine, liver, gall bladder, pancreas, radiographs of abdomen
- Demonstration of parts of gastro intestinal system. Normal radiographs of gastro intestinal system. Histology of gastro intestinal system.

### **Unit V: Respiratory system**

**4 hours**

- Parts of RS, nose, nasal cavity, larynx, trachea, lungs, broncho-pulmonary segments, histology of trachea, lung and pleura, names of paranasal air sinuses.
- Demonstration of parts of respiratory System Normal radiographs of chest. - Histology of lung and trachea

- 1. Peritoneum** **1 hour**
  - Description in brief . Demonstration of reflections.
  
- 2. Urinary system** **2 hours**
  - Kidney, ureter, urinary bladder, male and female urethra. Histology of kidney, ureter and urinary bladder
  - Demonstration of parts of urinary system. Histology of kidney, ureter, urinary bladder. Radiographs of abdomen-IVP, retrograde cystogram.
  
- 3. Reproductive system** **2 hours**
  - Parts of male reproductive system, testis, vas deferens, epididymis, prostate (gross & histology). Parts of female reproductive system, uterus, fallopian tubes, ovary (gross & histology). Mammary gland: gross
  - Demonstration of section of male and female pelvis with organs in situ. Histology of testis, vas deferens, epididymis, prostate, uterus, fallopian tube, ovary. Radiographs of pelvis, hysterosalpingogram.
  
- 4. Endocrine glands** **2 hours**
  - Endocrine glands: pituitary gland, thyroid gland, parathyroid gland, suprarenal gland (Gross & Histology).
  - Demonstration of the glands. Histology of pituitary, thyroid, parathyroid, suprarenal glands.
  
- 5. Nervous system** **12 hours**
  - Neuron, classification of nervous system, cerebrum, cerebellum, midbrain, pons, medulla oblongata, spinal cord with spinal nerve (gross histology),meninges, ventricles & cerebrospinal fluid, names of basal nuclei, blood supply of brain, cranial nerves. Sympathetic trunk& names of parasympathetic ganglia
  - Histology of peripheral nerve & optic nerve. Demonstration of all plexuses and nerves in the body. Demonstration of all parts of brain. Histology of cerebrum, cerebellum, spinal cord.

## **6. Sensory organs**

**3 hours**

- Skin: histology, appendages of skin. Eye: parts of eye & lacrimal apparatus. Extra-ocular muscles & nerve supply. Parts of ear: external, middle and inner ear and contents.
- Histology of thin and thick skin. Demonstration and histology of eyeball. Histology of cornea & retina.

## **7. Embryology**

**4 hours**

- Spermatogenesis & oogenesis. Ovulation, fertilization. Fetal circulation. Placenta, Demonstration of models.

### **Recommended Books (Vancouver Style)- Manipal Manual**

- Chaurasia BD. Human anatomy. CBS Publisher; 2004.
- Priya Ranganath. Text book of Anatomy for Allied Health Sciences New Delhi: CBS publishers and distributors.
- Waugh A, Grant A. Ross & Wilson Anatomy and physiology in health and illness E-book. Elsevier Health Sciences; 2014 Jun 25.
- Dilly PN. Essentials of Human Embryology. Postgraduate Medical Journal. 1984 Jun;60(704):447.
- Inderbir S. Textbook of human histology with color atlas. New Delhi: Jaypee Brothers Medical Publishers. 2006.



# PHYSIOLOGY

**Course: Core**

**Credit:04**

**Theory Classes:60 Hours**

## **Course objectives:**

- To broadly understand the physiological structure of each organ system and its physiological functions.
- To understand broadly the clinical abnormalities of organs and its clinical physiological implications

## **COURSE CONTENT:**

### **1. General Physiology**

**2 hours**

- Introduction to physiology
- Homeostasis: Definition, Positive feedback, negative feedback.
- Body Fluid Compartments *Transport mechanisms (brief)*

### **1. Blood**

**7 hours**

- Introduction:composition and function of blood.
- Blood Cells: types, Normal Count, Red blood cells: function. Erythropoiesis: Definition, Stages, Factors affecting, Hemoglobin: Function, concentration Physiological variation of RBC Count and Hb *Structure of Hb, methods of estimation*
- White blood cells: different types, functions, normal count, differential count *Immunity (brief)*
- Platelets: origin, normal count, functions *Morphology*
- Haemostasis: definition, steps, clotting factors, mechanism of clotting, disorders of clotting, Blood groups: ABO system, Rh system: Rh factor, Rh incompatibility. Blood grouping & typing, cross matching. Blood transfusion: indication, universal donor and recipient concept. Selection criteria of a blood donor, transfusion reactions. *Anticoagulants: classification, examples and uses*
- Anemias: definition, Symptoms and signs (brief). Blood indices: color index, MCH, MCV, MCHC (def and Normal Values). ESR and PCV: normal values, definition, determination (methods).

- Morphological and etiological classification of Anemia Plasma proteins: types and concentration, functions of albumin, globulin, fibrinogen, prothrombin. Blood volume: normal value, determination of blood volume *Regulation of blood volume (brief), Functions of Lymph*

## **2. Muscle Nerve physiology 5 hours**

- Introduction, Classification and structure of muscle, sarcomere *contractile proteins*
- Neuromuscular junction, Transmission across neuromuscular junction. Excitation contraction coupling. Mechanism of muscle contraction, rigor mortis. Fatigue

## **3. Cardiovascular system 8 hours**

- Heart: physiological anatomy, nerve supply. Properties of cardiac muscle Cardiac cycle: definition, systole, diastole, phases, JVP (brief) Cardiac output, stroke volume, EDV (only definitions). Heart sounds, normal heart sounds, mechanism and features, areas of auscultation.
- Intra-ventricular pressure curves, Significance of Heart sounds
- Blood pressure: definition, normal value, clinical measurement of blood pressure, hypotension, hypertension Heart rate: Physiological variations, regulation (brief), radial pulse, Electrocardiogram (ECG): Definition, Normal ECG, Causes of ECG waves, Uses of ECG. Cardiac shock: Definition, Types (brief), Triple response.

## **4. Respiratory system 6 hours**

- Introduction: Functions of respiratory system, physiological anatomy of respiratory system, respiratory tract Respiratory organs: lungs, alveoli, respiratory membrane Mechanism of breathing: Inspiration and Expiration, muscles involved, Mechanism.
- Surfactant: Composition, Function, intra pulmonary pleural pressure, surface tension
- Transport of oxygen: forms of transport, Oxygen Hemoglobin Curve. Lung volumes and capacities: Spirogram, Definitions and normal Volumes. Regulation of respiration: Nervous and chemical regulation, respiratory Centre, Herring Breurreflexes. Hypoxia: Definition, Classification, Description (in brief). Cyanosis, Asphyxia, Dyspnea, Dysbarism, Artificial Respiration, Apnoea. (Definition Only)

## 5. Digestive System

5 hours

- Introduction Physiological anatomy of gastro intestinal tract (All Structures in brief), functions of digestive system. Functions of Saliva Deglutition: definition, stages
- Stomach: functions Gastric secretion: composition, function, Phases of secretion Pancreas: Functions (exocrine), pancreatic juice: composition and regulation. Secretin and CCK-PZ
- Liver: Functions, Bile secretion, composition, function of bile; Bilirubin metabolism, types of bilirubin, Vandenberg reaction, Jaundice: types, significance. Gall bladder: Functions.
- Small intestine: functions, digestion and absorption, movements. (Brief) Large intestine: functions, defecation reflex

## 6. Renal System

5 hours

- Introduction: Functions of kidneys, composition of urine, nephron, cortical and juxtamedullary nephrons (comparison), Juxta Glomerular Apparatus: structure and function. Vasa recta
- Mechanism of urine formation GFR: Definition, Normal Values, factors effecting GFR, Measurement (Creatine, Insulin Clearance). Tubular reabsorption, TMG, Tubular secretion (brief).
- Mechanism of urine concentration: Counter-current mechanisms, Role of ADH, Osmolality, Diuresis, Diuretics. Micturition, innervations of bladder, cystometrogram.

## 7. Skin and Body temperature

1 hour

- Structure and function of Skin *Sweat Glands* Body Temperature: physiological variation. Regulatory mechanisms: Mechanisms Activated by Heat/Cold Role of hypothalamus, and fever.
- Body temperature measurement, hypothermia

## 8. Endocrine System

5 hours

- Introduction: Definition, classification of endocrine glands & their hormones.
- Hypothalamic- pituitary Axis Pituitary hormones: anterior and posterior pituitary hormones, Functions of Growth hormone,

- Thyroid gland: Thyroid Hormones: physiological function, regulation of secretion, disorders: hypo and hyper secretion of hormone. *Physiological anatomy of Thyroid*
- Adrenal cortex: functions of Cortisol and Aldosterone Adrenal medulla: functions of Adrenaline and Noradrenalin. *Physiological anatomy of Adrenal*
- Pancreas (Endocrine): Hormones of pancreas. Insulin: functions, regulation of blood glucose level, Diabetes mellitus Abnormalities of pancreatic hormones(brief)Regulation of Calcium Metabolism: Hormones involved, actions of PTH, Calcitonin, Vit D3Tetany

## 9. Reproductive system

4 hours

- Introduction, Function of reproductive system, Changes during puberty.
- Sex Differentiation
- Male reproductive system: functions of testes Spermatogenesis: Definition, site, stages, factors influencing, endocrine functions of testes Sperm, semen. Androgens: testosterone functions.
- Female reproductive system, menstrual cycle: Definition, changes, ovulation Functions of progesterone and estrogen *Hormonal Regulation* Physiological changes during pregnancy, Lactation (brief), milk ejection reflex

## 10. Nervous system

8hours

- Introduction: Parts of CNS and PNS, Functions of nervous system
- Neuron: definition, structure Nerve Fiber: classification, conduction of impulses continuous and salutatory. *Neuralgia*
- Synapse: Definition, structure, types, properties (brief). Receptors: definition, classification, properties (brief). Reflex: Definition, Reflex Arc, Examples.
- Babinski's sign. Tone, Posture (definition), Spinal cord nerve tracts: Diagram and Functions: Lateral Spino Thalamic Tract, Dorsal Column, Pyramidal Tract.UMN and LMN lesion, Hemiplegia, Stroke (brief) Functions of: Cerebral cortex, Cerebellum, Hypothalamus, Basal Ganglia*EEG, and Parkinsonism*
- Cerebro Spinal Fluid (CSF): site of formation, circulation (brief), functions.*Lumbar puncture*. Autonomic Nervous System: Sympathetic and parasympathetic distribution and functions (brief).

## **11. Special senses**

**4 hours**

- Vision: Functions of different parts(brief)Optic Pathway, Dark Adaptation, Color vision. Structure of eye, Structure of retina.
- Hearing: Function of Middle Ear, Functions of inner ear, mechanism of hearing (brief).
- Chemical Senses: Taste: types, receptor, Smell: physiology, receptors.

### **Course Outcome:**

- To broadly understand the physiological structure of each organ system and Its physiological functions
- To understand broadly the clinical abnormalities of organs and its clinical physiological implications

### **Recommended Books**

1. Guyton (Arthur): Text Book of Physiology. Latest Ed. Prism publishers.
2. Ganong William F: Review of Medical Physiology. Latest Ed. Tata McGraw Hill
3. Chatterjee CC: Human Physiology Latest Ed. Vol-1, Medical Allied Agency. Choudhary Sujith K: Concise Medical Physiology Latest Ed. New Central Book.

# BIOCHEMISTRY

**Core: Biochemistry**

**Theory classes: 60 hours**

## **Course Objectives:**

- Understanding the basic principles and procedures in specimen collection, reagent preparation and testing in Clinical laboratory
- Understanding the properties of biomolecules, their function and biochemical process involved in health and disease.
- Understanding the importance of nutrition in health and disease

## **COURSE CONTENT:**

**1. Introduction and scope of Biochemistry** **2 hours**

**2. Specimen collection:** **4 hours**

Pre-analytical variables. Collection of blood. Collection of CSF & other fluids. Urine collection. Use of preservatives. Anticoagulants.

**3. Safety measurements, Conventional and SI units** **2 hours**

**4. Dilutions** **2 hours**

Diluting solutions: e.g. preparation of 0.1 N NaCl from 1 N NaCl & from 2N NaCl etc., preparing working standard from stock standard, body fluid dilutions, reagent dilution techniques, calculating the dilution of a solution, body fluid reagent etc., saturated and supersaturated solutions.

**5. Carbohydrate chemistry** **4 hours**

Classification, Isomerism, General reactions of carbohydrates

**6. Lipids** **4 hours**

Chemistry of fatty acids, triglycerides, cholesterol, phospholipids, lipoproteins, Classification and functions.

**7. Protein chemistry, structure** **4 hours**

**8. Plasma Proteins** **2 hours**

Concentration, biochemical changes in disease, interpretation

**9. Enzymes** **6 hours**

Definition, classification, coenzymes, cofactors, factors effecting enzyme activity, inhibitors, units of measurements, isoenzymes, biological interpretation

**10. Vitamins** **6 hours**

Definition, classification, sources, functions, deficiency disorders

**11. Minerals** **6 hours**

Na, K, Ca, P, Fe, Cu, selenium- sources, daily requirements, availability and properties

**12. Nutrition** **3 hours**

Calorific value, nitrogen balance, respiratory quotient, basal metabolic rate, dietary fibers, nutritional importance of lipids, carbohydrates and proteins, vitamins. nutrition, nutritional support with special emphasis on parental nutrition.

**13. Quality control** **2 hours**

Accuracy, precision. Specificity, sensitivity, limits of error allowable in laboratory, percentage error. Normal values and Interpretations.

**14. Special Investigations** **11 hours**

Serum electrophoresis, immunoglobulins, drugs: digitoxin, theophylline's, regulation of acid base status, Henderson Hassel Bach equations, buffers of the fluid, pH regulation, disturbance in acid base balance, anion gap, metabolic acidosis, metabolic alkalosis, respiratory acidosis, respiratory alkalosis, basic principles and estimation of blood gases and pH, basic principles and estimation of electrolytes, water balance, sodium regulation, bicarbonate buffers,

**15. Bio Medical waste management** **2 hours**

## **Course outcome**

At the end of the course students must demonstrate an understanding of

- Various biomolecules in our body and their classification
- Sample collection for various tests performed in laboratory
- Preparation of dilutions of chemicals and body fluids.
- Various terms used in quality control
- Biomedical wastes management
- Significance of various special investigations

## **Recommended Books:**

1. Varley H. Practical clinical biochemistry. Practical clinical biochemistry.. 1954.
2. Naithani M, Singh P. Teitz textbook of clinical chemistry & molecular diagnostics. Medical Journal, Armed Forces India. 2006 Apr;62(2):204.
3. Kaplan LA, Pesce AJ, Kazmierczak SC. Clinical chemistry. Theory, analysis, correlation. 2003.
4. Ramakrishna(S) Prasanna(KG), Rajna ® Text book of Medical Biochemistry Latest Ed Orient Longman Bombay –1980
5. Vasudevan (DM) Sreekumari(S) Text book of Biochemistry for Medical students ,Latest Ed



# **Introduction to Emergency services I**

**Course: Core**

**Number of hours: 45 hours**

**Credits: 03**

**Course Objective:**

- The student acquires knowledge on the art. of history taking, physical examination and about investigations so as to enable the student to recognize the illness and start early treatment

## **COURSE CONTENT:**

**Unit -1**

**10 Hours**

### **Introduction to Structure and organization of a hospital and its departments**

- Definition & Overview of Emergency Medical Services System, Regulation and Policy Resource management, human Resources and training.
- Functioning of an ideal emergency medicine department
- Multiple Casualty Incident
- Concept of triage
- Types of triage
  - Simple Triage and Rapid Treatment
  - Simple triage and evacuation
  - Advanced triage
  - Disaster First Aid (DFA) and advanced triage

**Unit -II**

**10 Hours**

### **Ambulance services (A)**

- Preparation of an ambulance

Medical Equipment's Preparation

Non-Medical Preparation

1. Personal safety equipment as per local, state, and central standards
2. Fuel Status
3. Pre-planned routes or comprehensive street maps
- b. Personnel
4. Daily inspections
  - a. Inspection of vehicle systems
  - b. Equipment
2. Utilization of safety precautions and seat belts

### **Unit -III -**

**10 Hours**

#### **Ambulance services(B)**

1. Responding to a call
2. Emergency vehicle operations
3. Position and Transport of patient:
  - a. Patient position, prone, lateral, dorsal, dorsal recumbent, Fowler's positions, comfort measures, bed making, rest and sleep.
  - b. Lifting and transporting patients: lifting patients up in the bed transferring from bed to wheel chair, transferring from bed to stretcher.
4. Loading patients to an ambulance
  - a. Wheeled ambulance stretcher
  - b. Portable ambulance stretcher
  - c. Scoop stretcher
  - d. Long spine board
5. Transferring patients
6. The phases of an ambulance call

### **Unit -III -**

**10 Hours**

#### **Assessment of Mechanism of injury / nature of illness**

##### **Gaining Access**

- Fundamentals of Extrication
- Rescue EMS
- Equipment
  - Personal safety
  - Patient safety

### **Unit –IV**

**5 Hours**

#### **Communication**

1. Communication with doctors, colleagues and other staffs.
2. Non-verbal communication, Inter-personnel relationships.
3. patient contact techniques, communication with patients and their relatives

#### **Course outcome**

- Students are able to take history, physical examination and investigations so as to enable the student to recognise the illness and start early treatment

#### **Recommended Books**

1. Handbook of Emergency Care–Suresh David
2. Introduction to Clinical Emergency Medicine
3. Guide for practitioners in ED
4. Medicine Preparation Manual- George Mathew, KBI Churchill
5. Fundamentals of Respiratory Care-Egan's-Craigl.Scanlon

# ENGLISH AND COMMUNICATION

**Course: AECC**

**Credit: 02**

**Number of hours 30 hours**

## **Course Objectives**

The course is designed to enable students to enhance their ability to speak and write English required for effective communication in their professional work. Students will practice their skills in verbal and written English during clinical and classroom experience.

### **Unit 1: PHONETICS**

- Brief introduction to the history of English Language & Phonetics **(4 Hours)**
- Vowels, Diphthongs, Consonants
- Native pronunciation of English words

### **Unit – 2: Difference between American & British English (2 Hours)**

- Difference with regards to the Vocabulary, Accent, Grammar & Spellings.
- Syllables & Word Stress

### **Unit– 3: Grammatical Skills (10 hours)**

- Verb Tenses
- Appropriate Use of Prepositions
- Articles
- Subject Verb Agreement
- Appropriate usage of Punctuation and Capitalization
- Modals
- Transformation of Sentence structures

- Active Passive Voice
- Reporting skills
- Question Tags
- Homonyms & Homophones
- Degrees of Comparison
- One-word Substitution
- Linkers

#### **Unit – 4: Written Communication Skills**

**(5 Hours)**

- Drafting of formal letters
- Email drafts – Do's and don'ts in professional emails.
- Article and Essay writing
- Notice writing
- Speech writing
- News Report writing
- Dialogue writing

#### **Unit 5: Oral Communication Skills**

**(6 Hours)**

- Way of Communicating when we meet people.

Face to Face Communication

Tone of voice

Body Language

- Small Talk
- Elevator Speech

- Etiquettes of Phone Conversation & Phone role play
- Basics of meeting online
- Video conference role play
- Group discussion
- First Impressions
- Interview Skills: Purpose of an Interview

Do's & Don'ts of an Interview

### **Presentation Skills**

**(3 Hours)**

- Debating
- Speech Relay
- Presentations

### **Course Outcomes**

On completion of the course, the students will be able to

- Apply the concepts and principles of English Language use in professional development such as pronunciation, vocabulary, grammar, paraphrasing, voice modulation, Spelling, pause and silence.
- Apply LSRW (Listening, Speaking, Reading and Writing) Skill in combination to learn, teach, educate and share information, ideas and results.

### **Recommended Books:**

- Raymond Murphy. English Grammar in Use. Cambridge University. 2012.
- David Green. Contemporary English Grammar Structures and Composition. Macmillan Publishers. 2015.

# CONSTITUTION OF INDIA

**Course: Core**

**Credits: 02**

**Number of hours: 30 hours**

## **Course Objectives:**

- State and explain the constitution of India and its Constituent Assembly
- Explain fundamental rights and duties of citizen
- Identify union, state and federalism of India
- Knowledge of electoral process in India.
- State the basic concepts of Human Rights and its functions and authorities in society.

## **COURSE CONTENT:**

### **Unit 1: Indian Constitution**

**5 hours**

- Meaning and Importance of Constitution
- The Constituent Assembly
- The Preamble
- Salient Features of Constitution

### **Unit 2: Fundamental Rights and Directive Principles**

**3 hours**

- Meaning and Differences between Fundamental Rights and Directive Principles
- Fundamental Rights
- Rights Information Act Meaning, importance of RTI 2005

### **Unit 3: Union Government**

**4 hours**

- President of India- Election, Powers and Position
- Prime Minister and council of Ministers
- Parliament – LokSabha, RajyaSabha- Organisations and Powers

### **Unit 4: State Government**

**4 hours**

- The Governor
- Chief Minister and Council of Ministers
- State Legislature VidhanaSabha, VidhanaParishad – organization and Powers

**Unit 5: Federalism In India** **2 hours**

- Meaning Federal and Unitary Features

**Unit 6: The Judiciary** **2 hours**

- The supreme Court – Organization, Jurisdiction and Role
- The High Court – Organization Jurisdiction and Role

**Unit 7: Electoral Process In India** **2 hours**

- Election Commission – Organization, Functions

**Unit 8: Local Governments** **2 hours**

- Rural and Urban – Organisation, Powers and Functions

**Unit 9: Human Rights** **3 hours**

- Human rights – Meaning
- Universal Declaration of Human Rights
- Remedies against Violation of Human Rights in India

**Unit 10: Special constitutional provisions** **3 hours**

- Special Rights created in the constitution for: Dalits, Backwards, women and Children and the Religious and Linguistic Minorities.
- Constitution and Sustainable Development in India.
- Minority Commission in India

**Course Outcome:**

- This course is to keep the students abreast with the knowledge of the Constitution of India.
- To make the students understand the importance of human rights as citizens of India.

**Recommended Books**

- Basu, D.D , Constitution of India, New Delhi Himalaya Publication ; 2001
- Dinesh Shelton, David P Stuart, International Human Rights in Nutshell. Thomas Burghentel, West Nutshell Publisher; London; 2005.
- Parvathy Appaiah, Constitution of India, Mangalore Divya Deepa Publication; 2005
- Parvathy Appaiah, Human Rights. Divya Deepa Publication Mangalore; 2016
- Raj Ram. M, Constitution of India Himalaya Publication, New Delhi; 1999



**SEMESTER II**  
**GENERAL PATHOLOGY**

**Course: Core**

**Credits: 4**

**Number of Hours: 60 hours**

**Course Objectives:**

- To be able to define the medical terms, define and classify disease and understand the concepts of the disease.
- Able to describe the causes and mechanism of common diseases that occur during the routine work and also changes seen in different individuals and various organs and fluids.
- Able to enumerate the laboratory tests eg: urine, blood, body fluids and its application on various diseases.

**COURSE CONTENT:**

**Unit 1: Introduction**

**8 Hours**

**Unit 2: Cellular Responses to Stress and Injury**

**12 Hours**

- Types of cellular responses to injury
- Cellular adaptations
- In brief cell injury and types of cell injury, intracellular accumulation
- Necrosis and apoptosis (brief)
- Pathologic calcification, hyaline change, pigments

**Unit 3: Acute Inflammation**

**12 Hours**

- Definition, cardinal signs and sequence of events in acute inflammation
- List chemical mediators of inflammation, outcomes of acute inflammation, morphological types/patterns of acute inflammation and briefly systemic effects of inflammation

- In brief cutaneous wound healing (primary and secondary) Factors that influence wound healing, complications of wound healing
- Types of chronic inflammation, Granulomatous diseases, briefly about tuberculosis, leprosy and syphilis

**Unit 4: Hemodynamic Disorders, Thromboembolism and Shock** **6 Hours**

- Edema and thrombosis
- Embolism, infarction and shock (in brief)

**Unit 5: Diseases of the Immune System** **8 Hours**

- Introduction to immune system
- Hypersensitivity reactions (brief)
- Autoimmune diseases and systemic lupus erythematosus (in brief)
- Acquired immunodeficiency syndrome

**Unit 6: Neoplasia** **8 Hours**

- Nomenclature of neoplasms and characteristics of benign and malignant neoplasms
- Metastasis and spread of tumors
- Etiology of cancer (carcinogenic agents)
- Laboratory diagnosis of cancer, staging grading and prognosis

**Unit 7: Genetic Disorders** **2 Hours**

- Introduction of genetic disease and classification of genetic disorders

**Unit 8: Nutritional Disorders** **4 Hours**

- Common vitamin deficiencies -Fat-soluble vitamins
- Water-soluble vitamins—vitamin B complex

**Course Outcome:**

At the end of the course, the students will be able to

- Understand how body reacts to cellular responses and injuries.
- Have a basic knowledge about various laboratory tests and its application on various disorders.
- Define the medical terms, define and classify disease and understand the concepts of the disease.

**Recommended Books**

- Nayak R, Rai S, Gupta A. Essentials in hematology and clinical pathology. New Delhi: Jaypee Brothers Medical Publishers; 2012.
- Mohan H. Textbook of pathology. 8th ed. New Delhi, India: Jaypee Brothers Medical; 2018

# GENERAL MICROBIOLOGY

**Course: Core**

**Credits: 04**

**Number of hours: 60 hours**

## **Course Objectives:**

- To become familiar with the foundation concepts of history of Microbiology & General Bacteriology.
- To understand the key concepts in Immunology.
- To gain the knowledge of common bacterial infections.
- To understand and implement biomedical waste management and tackle infections

## **COURSE CONTENT:**

### **Unit 1: General Bacteriology**

**8 hours**

Introduction & History of Microbiology, Classification & Morphology of Bacteria, Growth & Nutrition, Culture Media & Methods, Sterilization & Disinfection, Fundamental aspects of antibacterial agents and antimicrobial susceptibility testing.

### **Unit 2: Immunology**

**11 hours**

Infection, Immunity, Immunization schedule, applications of antigen antibody reactions, Hypersensitivity, Tumor & Transplantation Immunology.

### **Unit 3: Systematic Bacteriology**

**13 hours**

Common bacterial infections, Mycobacterium, Spirochaetes

### **Unit – 4: Virology**

**10 hours**

Introduction to virology, viral hepatitis, poliomyelitis, Rabies, Human immunodeficiency virus.

**Unit 5: Mycology & Parasitology****12 hours**

Introduction to mycology, pathogenic yeasts & fungi, Introduction to parasitology, Amoebiasis, Malaria, Helminthic infections.

**Unit 6 : Applied Microbiology****6 hours**

Hospital acquired infections, Biomedical waste management.

**Course Outcome:**

At the end of the course, the students will be able to

- Understand how the bacteria grow and how sterilization & disinfection works.
- Have a basic knowledge about Immunization schedules and bacterial infections.
- Define terms in virology, mycology and parasitology.

**Recommended Books**

- Baveja C. Textbook of microbiology. 1st ed. New Delhi: Arya Publications; 2005.
- Textbook of Microbiology for MLT students by C. P. Baveja, 1st edition, Arya Publications.
- Textbook of Medical Laboratory technology, RamnikSood, 4th edition, Jaypee Publications.
- Allied Health Sciences Laboratory Technology

# **Emergency department equipment –I**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

## **Course Objective**

- Student will learn the basic principle, description, types, usage, calibration and maintenance of emergency department equipments.

## **COURSE CONTENT**

### **Unit - I**

**10 Hours**

**Basic principle, description, types, usage, calibration and maintenance of:**

1. Laryngoscopes
2. Endo-tracheal tubes (ETT), boogie
3. Ambu bag and mask

### **Unit - II**

**10 Hours**

**Basic principle, description, types, usage, calibration and maintenance of:**

1. Airway adjuncts, supra-glottic airway devices including Laryngeal mask airway (LMA)
2. Types of oxygen masks, venture etc.
3. Oro pharyngeal and nasopharyngeal airways (OPA and NPA)
4. Head tilt chin lift / Jaw thrust

### **Unit - III**

**10 Hours**

**Basic principle, description, types, usage, calibration and maintenance of:**

1. ICD tubes, bags, jars, instrument tray
2. Suction apparatus
3. Ambulance (Cervical) Collar, Philadelphia Collar

**Patient Monitoring**

Vital Parameter Documentation

Measurement of Pulse

Temperature Monitoring

Respiration Monitoring

Basic principle, description, types, usage, calibration and maintenance of:

1. Pulse oximeter
2. E.C. G Monitor
3. NIBP Monitor
4. EtCO<sub>2</sub>monitor

**Course Outcome**

- Students will be trained to perform emergency department equipments.
- Trained to assess vital signs

**Recommended Books**

1. Handbook of Emergency Care – Suresh David
2. Introduction to Clinical Emergency Medicine
3. Guide for practitioners in ED
4. Medicine Preparation Manual- George Mathew, KBI Churchill
5. Fundamentals of Respiratory Care- Egan's - Craig I.Scannon

# ENVIRONMENTAL STUDIES

**Course: AECC**

**Credit: 02**

**Number of hours: 30 hours**

## **Course Objectives:**

- Students will be able to learn about environment, factors affecting it, environmental ethics and its protection.
- Students will be able to describe a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- Students will be able to Critically analyze technical subject matter (written or oral) for scientific merit apply learned environmental knowledge and understanding to solve technical /research problems in new contexts

## **COURSE CONTENT**

### **Unit 1: Multidisciplinary nature of Environmental Studies (1hour)**

- Multidisciplinary nature of Environmental Studies
- Concept of sustainability and sustainable development

### **Unit 2: Ecosystems (4 hours)**

- What is an ecosystem? Structure and function of an ecosystem; Energy flow in the ecosystem; Food chains, food webs and ecological succession. Case studies of the following ecosystems:
  - a. Forest ecosystem
  - b. Grassland ecosystem
  - c. Desert ecosystem
  - d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
- History of ecosystem ecology
- Ecosystem services



### **Unit 3: Natural Resources**

**( 5 hours)**

Renewable and Non-renewable resources

- Land resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

### **Unit 4: Biodiversity and its conservation**

**6 hours**

- Levels of biological diversity: genetic, species and ecosystem diversity; Bio geographic zones of India; Biodiversity patterns and global biodiversity hotspots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: ecological, economic, social, ethical, aesthetic and informational value.
- Nature Reserves, tribal populations and rights, Human wildlife conflicts in Indian context

### **Unit 5: Environmental Pollution**

**(6 hours)**

Définition

- Cause, effects and control measures of: -
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - d. Light pollution
  - e. Noise pollution

- f. Thermal pollution
- g. Nuclear hazards
- Climate change, Greenhouse effect, Global warming, Acid rain, Ozone layer depletion.
- Solid waste Management: control measures of urban and industrial wastes.
- Pollution case studies.

#### **Unit 6 Environmental Policies & Practices**

**(3 hours)**

- Environmental Laws: Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- International Agreements: Montreal protocol, Kyoto protocol, Convention on Biological Diversity (CBD)
- Environmental Impact Assessment
- Carbon footprint
- Sustainable Development Goals

#### **Unit 7: Human communities and the environment**

**(3 hours)**

- Human Population growth – impacts on environment
- Resettlement and rehabilitation of project affected persons: case studies
- Disaster management – floods, earthquake, cyclone and landslides
- Environmental movements: Chipko, Silent Valley, Bishnois of Rajasthan
- Environmental ethics
- Consumerism and Environment
- Environmental communication and public awareness, case studies.

**Unit 8: Field work****(2 hours)**

- Visit to a local area to document environmental assets river/ forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes, etc.

**Course Outcomes:**

- Students learn to knowledge on Echo systems, biodiversity and environmental policies and practices.

**Recommended Books:**

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
2. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
3. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
4. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
5. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
6. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
7. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
8. Heywood, V.H &Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

# HEALTH CARE

**Course: AECC**

**Credit: 02**

**Number of Hours: 30**

**Course Objectives:**

**Introduction to Health:**

**(3 hours)**

- Definition of Health, determinants of Health, Health Indicators of India, Health Team Concept. National Health Policy.
- National Health Programmes (Briefly Objectives and scope) Population of India and Family welfare programme in India

**1. Introduction to Nursing:**

**(3 hours)**

- What is nursing? Nursing principles. Inter- Personnel relationships.

**2. Bandaging:**

**(3 hours)**

- Basic turns; bandaging extremities; Triangular Bandages and their application. Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions, comfort measures, Aids and rest and sleep.

**4. Lifting And Transporting Patients:**

**(4 hours)**

Lifting patients up in the bed. Transferring from bed to wheel chair. Transferring from bed to stretcher.

**5. Bed Side Management:**

**(4 hours)**

Giving and taking Bed pan, Urinal: Observation of stools, urine. Observation of sputum, understand use and care of catheters, enema giving.

**6. Methods of Giving Nourishment:** Feeding, Tube feeding, drips, transfusion Care of Rubber Goods **(3 hours)**

**7. Vital Parameter Recording:** Recording of body temperature, respiration and pulse,

**8. Asepsis:**

**(3 hours)**

Simple aseptic technique, sterilization and disinfection. Surgical Dressing: Observation of dressing procedures

**9. First Aid**

**(3 hours)**

**Course Outcomes:**

- Describe the concepts of health, illness and national health policy various welfare programmes
- In India.
- Explain the concepts of Nursing
- Explain the basic, special needs of the patient, bandaging and first aid for common emergencies
- Explain infection control

**Recommended Books:**

1. Hari S. Essentials of Management for Healthcare Professionals. Productivity Press; 2017 Dec 15.

# MEDICAL ETHICS

**Course: AECC**

**Credit: 01**

**Number of hours: 15 hours**

## **Course objectives:**

- To understand the about the ethical importance in medicine
- Knowledge regarding ethical concepts and teaching/learning experience
- Understand the importance of informed consent and ethical issues in health care.

## **COURSE CONTENT**

### **Introduction**

Medical ethics is a systematic effort to work within the ethos of medicine, which has traditionally been service to sick.

➤ **Objectives:** Identify underlying ethical issues and problem in medical practice

#### **Unit 1: Introduction to medical ethics**

**1 hour**

- What is ethics, what are values and norms, freedom and personal responsibility?

#### **Unit 2: Definition of medical ethics**

**2 hours**

- Major principles of medic ethics.

#### **Unit 3: Perspective of medical ethics**

**2 hours**

- The Hippocratic Oath, the Declaration of Helsinki, the WHO
- Declaration of Geneva, International code of Medical Ethics (1993),
- Medical Council of India Code of Ethics (2002).

#### **Unit 4: Ethics of the individual**

**2 hours**

- Truth and confidentiality, the concept of disease, health and healing, the Right to health.

#### **Unit 5: The ethics of human life**

**2 hours**

- Prenatal sex determination.

#### **Unit 6: The family and society in medical ethics**

**2 hours**

- Euthanasia, cancer and terminal care.

**Unit 7: Death and dying****2 hours**

- Use of life-support systems, the right to die with dignity, suicide—the Ethical outlook.

**Unit 8: Professional Ethics****2hours**

- Contract and confidentiality, malpractice and negligence.

**Course Outcomes:**

- Increasing the awareness and knowledge of students of the value dimensions of interactions with the patients, colleagues, relations and public.
- Fostering the development of skills of analysis, decision making and judgment.
- Making the students aware of the need to respect the rights of the patient.
- Duties and responsibilities of the technologists.

**Recommended Books:**

1. Tsai DF. The WMA medical ethics manual. Journal of Medical Ethics. 2006 Mar 1;32(3):163.

# SOCIOLOGY

**Course: AECC**

**Credit: 01**

**Number of Hours: 15**

## **Course objectives:**

- To develop the abilities of students to analyse the sociological concepts and their relationship with social work practice.
- To understand Indian social problems and its impact on social development.
- To develop skills for social analysis.
- To develop an understanding of emerging issues of social concern and their impact on society.
- To develop basic understanding of health perspectives and their practice in social work

## **Unit 1: Introduction to Sociology**

**(3 hours)**

- Meaning, definitions and scope of sociology.
- Importance of its study with special reference to health care professionals.
- Methods of Sociological investigations - Case study, social survey, questionnaire, interview and opinion poll methods.

## **Unit 2: Society, Family, Community and Socialization**

**(4 hours)**

- Concept of society: Definition and characteristics.
- The family: Meaning, definitions and functions of family.
- Role of family on individual's health and nutrition,
- Meaning, definitions and types of communities: Rural, Urban and Tribal community
- Socialization: Meaning and characteristics, Process of socialization, Agencies of socialization and their role –Family, School, peer group, religion, media.

## **Unit 3: Social Problems, Social Change, Social Planning, Social Work and Social security**

**measures**

**(5 hours)**

- Social Problems: Meaning, characteristics and their influence on health.
- Social Change: Meaning, definitions and characteristics.
- Social Planning: The role of social planning in the improvement of health and rehabilitation
- Social Work -Basic concepts of social work, definitions, objectives, values and basic methods. Role of social worker in health settings.



- Social Security: Social Security schemes for the disadvantaged sections in the society.

#### **Unit 4: Socio-cultural factors in Health and Disease**

**(3 hours)**

- Health: Concept, definitions and dimensions
- Meaning of social factors and role of social factors in health and disease.
- Culture and its influence on health and disease.

#### **Course outcome:**

- Able to understand the meaning of sociology, its relationship with other disciplines and also to gain knowledge on the sociological methods of investigations
- Able to understand social factors and its role in health and disease
- Able to understand the meaning, importance and agencies of socialization
- Able to understand the concept and role of social groups in health, sickness and rehabilitation
- Able to understand the meaning of family and its role in health, nutrition and sickness among members
- Able to understand the meaning, features and health hazards of rural and urban communities
- Able to understand the concept of culture and health and their relationship
- Able to understand the meaning of social change, factors of social change, social change and stress, social change and health
- Able to understand the meaning of social problems and types of social problems in the society
- Gain knowledge on the social security and social legislation measures for the disabled
- Able to understand the meaning of social work and role of medical social worker

#### **Recommended Books:**

1. Vidya Bhushan, D R Sachdeva, An Introduction to Sociology, Kitabmahal- Allahabad
2. Roshni Jain, An Introduction to Sociology, AITBS publishers -New Delhi, First edition. 2012
3. Krishna Gowda, Sociology for Nurses, CBS Publishers & Distributors Pvt Ltd- New Delhi, Sixth edition., 2010
4. Ram Ahuja, Social problems in India, Prem Rawat for Rawat Publication, third edition., 2014
5. Mohammed Akram, Sociology of Health, PremRawat for Rawat Publication- Jaipur, 2016

## **THIRD SEMESTER**

### **Systemic Pathology**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

#### **Course Objectives:**

- To be able to define the medical terms, define and classify disease and understand the concepts of the disease.
- Able to describe the causes and mechanism of kidney diseases that occur during the routine Work and also changes seen in different individuals

#### **COURSE CONTENT**

##### **Cardiovascular System:**

**14hours**

- Atherosclerosis-definition, risk factors, pathogenesis, morphology and complications
- Ischemic heart disease: Myocardial infarction-definition, pathogenesis, morphology and complications
- Hypertension- Benign and malignant hypertension: pathogenesis, pathology and complications
- Aneurysms-Definition, classification, pathology and complications
- Heart failure-Right and left heart failure: causes, pathophysiology, and morphology
- Valvular heart disease-causes, pathology,& complication. Complications of arterial valves

- Rheumatic heart disease and infectious endocarditis-definition, etiopathogenesis, morphology and complications
- Congenital heart disease-Types and atrial septal defect; aneurysms- types and morphology; cardiomyopathies in brief
- Pericardial effusion –causes, effects and diagnosis Cardiomyopathy–Definition, types, causes, and significance Infective endocarditis
- Myocarditis

### **1. Hematology:**

**5hours**

Anaemia –definition, morphological types and diagnosis of anaemia

Brief concept about Haemolytic anaemia and polycythaemia.

Leukocyte disorder – briefly leukaemia, leucocytosis, agranulocytosis etc.

Bleeding disorders–definition, classification, causes & effects of important types of bleeding disorders. Briefly various laboratory tests used to diagnose bleeding disorders

### **2. Respiratory System:**

**7hours**

Atelectasis-types, Adult respiratory distress syndrome- causes, pathogenesis and morphology

Pulmonary edema-classification, causes and morphology

Chronic obstructive pulmonary disease- Chronic bronchitis, emphysema, asthma, bronchiectasis: Definition, etiopathogenesis and morphology

Restrictive pulmonary diseases-Definition, categories, pathogenesis and morphology

Pneumoconiosis-types, asbestosis, coal workers pneumoconiosis- etiopathogenesis and morphology

Pleural effusion –causes, effects and diagnosis

Pulmonary embolism, infarction, pulmonary hypertension-Definition, etio-pathogenesis and morphology

### **3. Renal System:**

**4hours**

Clinical manifestations of renal diseases. Briefly causes, mechanisms, effects and laboratory diagnosis of ARF & CRF. Briefly Glomerulonephritis and pyelonephritis

End stage renal disease–definition, causes, effects and role of dialysis and renal transplantation and its management

Brief concept about obstructive uropathy

### **Practical's:**

**30hours**

1. Urine examination: physical, chemical, microscopy
2. Blood grouping & Rhtyping
3. Haemoglobin estimation, packed cell volume (PCV), erythrocyte sedimentation rate (ESR), estimation of bleeding & clotting time
4. Charts–Urine chart, ARF, CRF, Acute glomerulonephritis
5. Specimens
  - Atherosclerosis
  - Pneumonia

- Tuberculosis
- Infarct-lung
- Contracted kidney
- Hydronephrosis

**Course Outcome:**

- To be able to define the medical terms, define and classify disease and understand the concepts of the disease.
- Able to describe the causes and mechanism of kidney diseases that occur during the routine work and also changes seen in different individuals

**Recomonded Books:**

1. Ramadas Nayak, Sharada Rai.Essentials in Hematology and Clinical Pathology.2<sup>nd</sup> Edition Jaypee MedicalPublisher.2017
2. HarshMohan.Textbookof PATHOLOGY. 8thedition. Jaypee Medical Publisher.2018
- 3.RamadasNayak. Histopathology Techniques and its Management. Jaypee Medical Publisher.2018
4. P.Chakraborty, Gargi Chakrabort. Practical Pathology. India Kolkata New Central Book Agency,
5. Hand-Book of Medical Laboratory Technology CMC Vellore

## APPLIED MICROBIOLOGY

**Course: Core**

**Number of hours: 60Hours**

**Credits: 3**

### **Course Objective:**

- To understand health care associated infections and antimicrobial resistance
- To acquire knowledge of the principles of sterilization and disinfection in hospital.

### **Course Content:**

**UNIT I:Health care associated infections and anti microbial resistance Infection & Multidrug resistant organisms 15hours**

Must know Topics: Definitions of various types of infections, Source of infection, modes of transmission, Drug resistant pathogens-methicillin resistant *Staphylococcus aureus*

Desirable to know: *Clostridium difficile*, Vancomycin resistant enterococci

### **Hospital acquired infections**

Must know Topics: Definitions, criteria for diagnosis in brief and causative agents- catheter related bloodstream infections, ventilator associated pneumonia, surgical site infections

### **Microbiology of urinary tract infections**

Must know Topics: Definition, Causative agents, Transmission, Predisposing factors Pathogenesis, Lab diagnosis in detail significant bacteriuria, catheter related urinary tract infections

### **Health care personnel in hospital setup**

Must know Topics: Disease communicable to hospital personnel and preventive measures to combat the spread of these infections by monitoring and control-tuberculosis HIV, hepatitis B, hepatitis C, salmonella

Desirable to know: Respiratory route(varicella-zoster, respiratory syncytial viruses) Blood borne transmission (cytomegalo virus, Ebola virus etc),orofaecal route(hepatitis etc),direct contact (Herpes simplex virus etc),

### **Micro biological surveillance**

Must know Topics: Definitions, Methods & sampling techniques

Desirable to know: To know the hospital flora and to assess the antimicrobial resistance

### **Opportunistic infections**

Must know Topics: In brief-opportunistic pathogens seen in Immune compromised patients-Candida, Cryptococcus

Desirable to know:Parasites,viruses&bacteria as opportunistic pathogens

## **UNIT II: Sterilization and disinfection**

**15Hours**

### **Sterilization**

Must to Know:Definition,Classification of methods, Principles of Dry heat, moistheat, Autoclaving in detail-Preparation of materials for autoclaving: packing of different types of materials,loading,holding time And unloading.

Desirable to Know: Hot air oven

## **Disinfection, antiseptics**

Must to Know: Disinfection of instruments used in patient care: classification, different methods, advantages and disadvantages of the various methods. Disinfection of the patient care unit. Infection control measures for ICU's.

Desirable to Know: Disinfectant efficacy testing

## **Sterilization–applied aspects**

Must to Know: Rooms: gaseous sterilization, Equipments: classification of the instruments and appropriate methods of sterilization. Central supply department: the zoning and the floor plan for instrument cleaning, High-level disinfecting and sterilizing critical areas.

Desirable to Know: Quality control in CSSD

## **Bacteriological analysis of water**

Must to Know: Different sampling techniques for potable waterproof water, dialysate.

Desirable to Know: Endo toxin testing

## **PRATICAL:**

**30hours**

Practicals will be carried out using charts and practical exercises

### **Principles of auto claving&quality control of sterilization.10hours**

Principles of autoclaving quality control of sterilization.Definition, Classification of methods, Principles of Dry heat, moist heat,

In detail autoclaving Preparation of materials for autoclaving: packing of different types of materials, loading, holding time and unloading.Dryheat/Moistheat: Temperature recording charts interpretation, Color change indicators interpretation



**Disinfection of wards, OT and laboratory****5hours**

Disinfection of instruments used inpatient care classification, different methods, advantages and disadvantages of the various methods. Disinfection of the patient care unit. Infection control measures for ICU's

**Collection of specimen for sterility testing****5hours**

Collection of specimen from outpatient units, inpatient units, minor operation theatre and major operation theatre for sterility testing Air sampling culture plates, interpretation of colony forming units based on airflow rate and sampling time

**Methods employed for sterility testing Interpretation of results of sterility testing.****10hours**

Rooms: gaseous sterilization, Equipments: classification of the instruments and appropriate methods of sterilization. Central supply department: the four area and the floor plan for instrument cleaning, high-level disinfecting and sterilizing areas. Interpretation of sterility of hemodialysis water/distilled water/deionized water, based on growth of colonies in BHI Agar to be reported as XCFU/unit

**Course Outcome:**

- To understand health care associated infections and antimicrobial resistance
- To acquire knowledge of the principles of sterilization and disinfection  
In hospital.

**Recommended Books:**

- Anathanarayana & Panikar Medical Microbiology-University Press
- Textbook of Medical Microbiology for MLT students-CP Baveja
- Hospital Infection Control Manual, YMCH

# GENERAL PHARMACOLOGY

**Course: Core**

**Credits: 04**

**Number of hours: 60 hours**

**Course objectives:**

- Know the basics of Pharmacology like, sources of drugs, routes of drug administration and general principles
- Describe the principles of pharmacokinetics and pharmacodynamics
- To appreciate various adverse drug reactions
- To have a basic knowledge of drugs affecting various body systems

**COURSE CONTENT:**

**Unit 1: General Pharmacology**

**8 Hours**

- Introduction to Pharmacology
- Routes of drug Administration
- Absorption & Distribution
- Metabolism
- Excretion
- Pharmacodynamics - Mechanism of drug action- receptors
- Factors modifying drug actions
- Adverse drug reactions

**Unit 2: Autonomic Nervous System drugs**

**6 Hours**

- Sympathomimetics
- Alpha blockers
- Beta-blockers
- Cholinomimetics
- Anticholinergics
- Skeletal muscle relaxants

**Unit 3: Central Nervous System**

**11 Hours**

- Opioid analgesics
- Non-opioid analgesics (Prostaglandins)

- NSAIDs
- Ethyl alcohol
- Sedative hypnotics
- Antiepileptic drugs
- Local anesthetics-1
- Local anesthetics-2
- General anesthetics- I
- G A – II ( PAM)
- CNS stimulants

#### **Unit 4 : Cardio Vascular System Drugs**

**9 Hours**

- Diuretics
- Vasodilators (CCB's, Drugs acting on RAS)
- Antihypertensives
- Antinational drugs
- Pharmacotherapy of shocks
- Cardiac glycosides
- Cardioplegic drugs
- Antiarrhythmic drugs
- Primary solutions

#### **Unit 5: Blood**

**6 Hours**

- Anaemia, erythropoietin
- Anticoagulants
- Anti platelet drugs
- Fibrinolytics,
- Lipid lowering drugs
- Vit.D and calcium, folic acid, phosphate binders

#### **Unit 6: Endocrines**

**1 Hour**

- Corticosteroids

#### **Unit 7: Chemotherapy**

**9 Hours**

- General Principles of Chemotherapy
- Sulfonamides

- Penicillins
- Cephalosporins
- Broad spectrum antibiotics
- Macrolides
- Aminoglycosides
- Chemotherapy of UTI
- Drug Therapy of Tuberculosis

### **Unit 8: Miscellaneous topics**

**10 Hours**

- Antihistamines
- Antiemetics
- Drugs used in bronchial asthma-1
- Drugs used in bronchial asthma-2
- Cough
- Inhalational gases and emergency drugs
- I V fluids
- Metabolic and electrolyte imbalance
- Immunosuppressants
- Antiseptics and disinfectants

### **Course Outcomes:**

At the end of the course, the students will be able to

- Define and describe the principles of pharmacology and pharmacotherapeutics
- Define absorption, distribution, metabolism and excretion of drugs
- Define, identify and describe the adverse drug reactions
- Define and describe the pharmacological actions and therapeutic uses of drugs affecting systems- autonomic nervous system, cardiovascular system, blood, endocrine etc.
- To have a basic knowledge of drugs used in the treatment of various infections
- To have a basic knowledge on miscellaneous drugs

### **Recommended Books:**

- Udaykumar P. Textbook of Pharmacology for Dental and Allied Sciences. Jaypee Brothers Publishers; 2008.

## **Patient Assessment - Medical**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

### **Course Objective**

1. Training for assessment of patient's with medical emergencies.

### **COURSE CONTENT**

#### **UNIT-I**

**10 Hours**

##### **Perform the phases of patient assessment:**

- Initial Assessment: The general impression of the patient to determine priority of care
- Assessment of the mental status, grading of levels of mental status
- Assessment of Patient's airway, Breathing & Circulation
- Arrangement needed for Airway Management.
- Manual techniques, Oropharyngeal airways
- Nasopharyngeal airways, Oropharyngeal suctioning, Perform Respiratory Support
- Oxygen administration, Bag valve mask ventilation Demand valve resuscitators

#### **UNIT-II**

**10 Hours**

##### **Focused History and Physical Examination – Medical:**

- Assess History of Present illness
- Assess sample history
- Perform rapid assessment
- Unresponsive Medical patients
- Assessing a specific chief complaint, difference in assessing a patient with altered mental status
- And other responsive patients

### **UNIT-III -**

**10 Hours**

#### **Ongoing Assessment**

- To make general impression of the patient, repeated
- Initial assessment
- Reassessment of mental status, Airway, Breathing – rate, quality, Skin color, vital signs
- Reestablish patient's priorities, reassessment of patient complaint or injuries.
- Checking Interventions – Adequacy of Oxygen delivery/artificial ventilation.
- Management of bleeding, adequacy of other interventions

### **UNIT-IV -10 Hours**

#### **Detailed Physical Examination:**

- Patient and injury specific
- Detailed physical examination to gather additional information-Inspect, palpate.
- Look and feel for the following examples of injuries or signs of injury – Deformities, Contusions, Abrasions, Punctures/Penetrations, Bleeding, Burns, Tenderness, Lacerations, Swelling, any drainage, Odors, Discoloration, Foreign bodies, Repentance, Paradoxical motion, Breath sounds, Motor functions.

### **UNIT-V**

**5 hours**

- Assessment of patients with behavioral emergencies

#### **Course Outcome**

1. Able to perform assessment of patient's with medical & psychiatric emergencies.

#### **Recommended Books**

- 1.Macleod's clinical examination 10<sup>th</sup> edition Editor-John Macleod, John F.Munro- Churchill Livingstone Elsevier
- 2.Hutchinson's clinical methods 21<sup>st</sup> edition Editor-Michael Swash-Saunders Elsevier

## **Reference Books**

1. Manual of practical medicine- R. Alagappan 3rd edition- Jaypee
2. Davidson's Text book Of General Medicine

## **Online Resources**

1. <https://meded.ucsd.edu/clinicalmed/links.htm>
2. [www.practicalclinicalskills.com](http://www.practicalclinicalskills.com)

## **Patient Assessment - Medical Practicals**

**Course: Core**

**Credits: 03**

**Number of hours: 90 hours**

- Demonstration of patient assessment in emergency department, ward and field

## **Recommended Books**

1. Macleod's clinical examination 10<sup>th</sup> edition Editor- John Macleod, John F. Munro- Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21<sup>st</sup> edition Editor- Michael Swash- Saunders Elsevier

## **Reference Books**

1. Manual of practical medicine- R. Alagappan 3rd edition- Jaypee
2. Davidson's Text book Of General Medicine

## **Online Resources**

1. <https://meded.ucsd.edu/clinicalmed/links.htm>
2. [www.practicalclinicalskills.com/](http://www.practicalclinicalskills.com/)

## **Introduction to Emergency services II**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

### **Course Objective**

1. Student will learn to perform cardiac resuscitation with all advanced intervention, able to follow universal precaution and infection prevention during procedures.

### **COURSE CONTENT**

#### **Unit- I**

**15 Hours**

#### **Principles of resuscitation**

- Sudden cardiac death
- Cardiac, respiratory arrest
- Basic cardiopulmonary resuscitation in adults
- Advanced cardiac life support
- Resuscitation in neonates
- Resuscitation in pediatrics
- Resuscitation in pregnancy
- Chocking - Infant, Adult & Paediatrics
- Ethical issues

#### **Unit- II**

**15 Hours**

#### **Specific resuscitative procedures**

- Air way management
- Breathing and ventilation management
- Venous and intra osseous access
- Defibrillation and cardio version



- Fluid and blood resuscitation
- Vaso active agents in resuscitation
- Arrhythmias
- cricothyroidotomy,
- needle thoracocentesis,
- Pericardiocentesis
- Tourniquet application

### **Unit- III**

**5 Hours**

#### **The emergency response team**

- Characteristics of team leader, roles of team members, closed loop communication, constructive criticism

### **Unit- IV**

**5 Hours**

#### **Universal Precautions and Infection Control:**

- Hand washing and hygiene.
- Injuries and Personal protection, Insulation and safety procedures.
- Aseptic techniques, sterilization and disinfection.
- Disinfection and Sterilization of devices and equipment
- Central sterilization and supply department
- Biomedical Medical waste management

### **Unit- V**

**5 Hours**

#### **Documentation**

- The patient's medical record, charting, electronic medical records, hand-off at shift change and when transferring the patient
- Medico legal aspects

## Course Outcome

1. Able to perform assessment of patient's with medical emergencies, and manage them through emergency departmental procedures

## Recommended Books

1. Suresh S. David : Handbook of Emergency Medicine , Elsevier India
- 2.S. .V. Mahadevan, Gus M. Garmel : An Introduction to Clinical Emergency Medicine; Cambridge University Press
- 3.Donald C. Correll : The Nurse Practitioner Practice Guide -: For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- 4.Aggarwal Praveen , George K. Mathew : Medicine: Prep Manual for Undergraduates ; Elsevier India
- 5.Robert L. Wilkins, James K. Stoller, Craig L. Scanlan : Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication
- 6.salyer, steven w. *The Physician Assistant Emergency Medicine Handbook*. Philadelphia: Saunders

## **Introduction to Emergency services II Practical**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

- Preparation of an ambulance Problems based on triage Basic life support skills

### **Recommended Books**

1. Suresh S. David: Handbook of Emergency Medicine , Elsevier India
2. S.V.Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
3. DonaldC.Correll: The Nurse Practitioner PracticeGuide-: For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute CareHorizons, LLC
4. Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
5. RobertL.Wilkins, James K.Stoller, Craig L.Scanlan:Egan's Fundamentals of RespiratoryCare [with Study Guide] Mos by Publication

# KANNADA

**Course: AECC**

**Number of hours: 60 hours**

**Credits: 02**

## **Course Objectives**

- Enable students to learn alphabet, words and simple sentences in Kannada.
- Enable students to enhance speaking and writing communicative skills in Kannada and learn technical words related to medical science

## **COURSE CONTENT:**

### **Unit I:**

- Kannada Letters (vowels, Consonant)

### **Unit II:**

- Words, Phrases, formation of sentences, Letter Writing, Essay Writing. Treatment related Kannada words (from English to Kannada)

### **Unit III:**

- Possible communication in kannada between Patients and Doctors.
- Advising sentences to the possible questions of patients.
- Some important sentences which enable to communicate with doctors and colleagues.

## **Course Outcome**

- Allied health science students will be able to attend health issues of native Kannada speaking patients more effectively.
- They can also act as a bridge between doctors and patients.

## **Recommended Books**

- Kannada Vyakarana – (8th ,9th and 10th Karnataka government text books) HSK, Vyavarahika  
Kannada

## **SEMESTER IV**

### **Emergency Department Equipment –Part II**

Course: Core

Credits: 03

Number of hours: 45 hours

#### **Course Objective**

1. Training to perform emergency procedures, use of advanced emergency equipments
2. Able to perform/assist basic diagnostic testing.

#### **COURSE CONTENT**

##### **Unit- I**

**15 Hours**

##### **Basic principle, description, types, usage, calibration and maintenance of:**

- Electrocardiograph
- Multi-parameter monitors
- Esophageal – Tracheal Combitube
- Nebulizer
- Defibrillator ,AED
- Ventilator
- Crash cart
- Trolleys and stretcher
- Anesthesia work-station

##### **Unit- II**

**15 Hours**

##### **Basic principle, description, types, usage, calibration and maintenance of:**

- Splints, Plaster of Paris and immobilization devices

- Dressing and procedure packs and materials
- Foley's catheter
- Nasogastric tube

### Unit- III

15 Hours

#### Basic principle, description, types, usage, calibration and maintenance of:

1. Point of care (POC) investigations including POC ultrasound, Bedside Xray, POC blood and urine investigations

#### Course Outcome

1. Able to perform emergency procedures
2. Trained to use advanced emergency equipments
3. Able to perform/assist basic diagnostic testing.

#### Recommended Books:

1. Suresh S. David: Handbook of Emergency Medicine, Elsevier India 2012. S. V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
2. Donald C. Correll: The Nurse Practitioner Practice Guide - For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
3. Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
4. Robert L. Wilkins, James K. Stoller, Craig L. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication
5. Salyer, Steven W. *The Physician Assistant Emergency Medicine Handbook*. Philadelphia: Saunders

## **Emergency Department Equipment –II - Practical**

**Course: Core**

**Number of hours: 60 hours**

**Credits: 03**

- Immobilization devices
- Traction & Splinting
- Plaster of Paris

Recommended Books:

1. SureshS. David: Handbook of Emergency Medicine ,ElsevierIndia2.S..V.Mahadevan,  
GusM.Garmel: An Introductionton Clinical Emergency
2. Medicine; Cambridge University Press
3. DonaldC. Correll:The Nurse Practitioner Practice Guide-: For Emergency Departments, UrgentCare  
Centers, and Family Practices, FOURTHEDITION; Acute Care Horizons, LLC

# Medical Emergencies I

**Course: Core**

**Number of hours: 45 hours**

**Credits: 03**

## Course Objective

1. Understanding the difference between medical & Traumatic emergencies.
2. Training to manage pulmonary ,cardiology & neurological emergencies with all advanced techniques in the field and emergency department.
3. Training for fluid therapy.

## COURSE CONTENT

### UNIT -I

**10 Hours**

#### **Pulmonary Emergencies**

Approach to the patient with breathlessness and possible differential diagnosis; presenting symptoms, clinical assessment and point of care investigations in the emergency department of

- Respiratory failure
- Upper airway obstruction
- Pneumothorax
- Acute asthma
- Acute exacerbation of COPD
- Hemoptysis
- Pleural effusion and emphysema
- Pneumonia
- Hemoptysis



## **UNIT -I I**

**10 Hours**

### **Fluid and Electrolyte Disturbances**

Fluid compartments; possible causes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management of

- Hypovolemia
- Fluid overload states
- Hyperkalemia
- Hypokalemia
- Hyponatremia
- Hyponatremia
- Hypocalcaemia

## **UNIT -III**

**10 Hours**

### **Neurological Emergencies**

- Approach to the un conscious patient
- Seizure disorder and Status epilepticus - possible causes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management.
- Ischemic stroke -presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, ACLS protocol.
- Intra cerebral hemorrhage - presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, ACLS protocol
- Meningoencephalitis - presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management

## UNIT -III

15 Hours

### Shock and sepsis

Definition and types of shock

- Cardiogenic shock - possible causes, investigations and emergency management
- Anaphylaxis and anaphylactic shock - possible causes, investigations and emergency management
- Sepsis - presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management

### Course Outcome

1. Able to differentiate difference between medical & Traumatic emergencies.
2. Able to manage pulmonary, cardiology & neurological emergencies with all advanced techniques in the field and emergency department.
3. Trained for fluid therapy.

### Recommended Books:

1. Suresh S.David: Hand book of Emergency Medicine, Elsevier India
2. S.V.Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
3. Donald. Correll: The Nurse Practitioner Practice Guide-: For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
4. Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
5. Robert L. Wilkins, James K. Stoller, Craig L. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication
6. Salyer, Steven W. The Physician Assistant Emergency Medicine *Handbook*. Philadelphia: SaundersCare- Egan's- Craig L. Scanlon

## Medical Emergencies I - Practical

**Course: Core**

**Number of hours: 60 hours**

**Credits: 03**

- Preparing an ambulance for medical emergency
- Responding to a call and scene management of medical emergency
- Receiving and resuscitating a patient with a medical emergency in the emergency department
- Triage
- Initial Assessment in the Emergency Department.
- Documentation of Vital Parameters.
- Biochemical, Radiological Investigations on receiving the patient emergency department.
- Continuous Monitoring of Patient in Emergency Medicine Department.
- Clearing the airway , Suctioning the oropharynx ,Positioning the Patient, Oxygen Therapy.
- Loading the drugs, Calculating dose, dilution of the drug, Administration of Drugs by IM,IV,SC and Intra dermal Test dose.
- Starting an IV Infusion/fluid in EMD

### **Recommended Books:**

1. SureshS.David:Handbook of Emergency Medicine ,Elsevier India
2. S.V.Mahadevan, GusM.Garmel:An Introduction to Clinical Emergency Medicine; Cambridge University Press
3. DonaldC.Correll: The Nurse Practitioner PracticeGuide-: For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute CareHorizons, LLC
4. Aggarwal Praveen,George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
5. RobertL.Wilkins, James K.Stoller, Craig L.Scanlan:Egan'sFundamentalsof Respiratory Care [with Study Guide] Mos by Publication
6. Salyer, stevenw.The Physician Assistant Emergency Medicine

## **Patient Assessment - Trauma**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

Course Objective

1. Trained to perform assessment of patient's with medical emergencies.

### **UNIT-I**

**10 Hours**

#### **Rapid Trauma Assessment:**

- Start with initial assessment.
- Assess the head, Neck, cervical spine, chest, Abdomen.
- The spine, Pelvis & all four extremities – Inspect, and palpate for injuries or signs of injuries – i.e. Deformities, contusions, abrasions, punctures or penetrations, burns, tenderness, lacerations, swelling, distal pulse etc.

### **UNIT-II**

**15 Hours**

#### **Focused Assessment:**

- Focused History and Physical Examination – Trauma
- Ongoing Assessment – to make general impression of the patient, repeated Initial assessment
- Reassessment of mental status, Airway, Breathing – rate, quality, Skin color, vital signs
- Reestablish patient's priorities, reassessment of patient complaint or injuries.
- Checking Interventions – Adequacy of Oxygen delivery/artificial ventilation.
- Management of bleeding, adequacy of other interventions

- Reconsider Mechanism of injury – significant mechanism of injury, infant and child consideration.
- Focused assessment on the specific injury site
- Baseline vital signs

### **UNIT-III**

**20 Hours**

#### **Assessment of Cases with Legal Implications or which require evidence Preservation:**

- Sexual assault/rape
- Child/elderly abuse
- Shootings/stabbing
- Animal bites

#### **How to go about**

- Presumed dead on arrival
- Do not resuscitate

#### **Course Outcome**

1. Trained to perform assessment of patient's with medical emergencies.

#### **Recommended Books**

1. Macleod's clinical examination 10<sup>th</sup> edition Editor-John Macleod, John F. Munro- Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21<sup>st</sup> edition Editor-Michael Swash-Saunders Elsevier

#### **Reference Books**

1. Manual of practical medicine- R. Alagappan 3rd edition-Jaypee
2. Davidson's Text book Of General Medicine

#### **Online Resources**

1. <https://meded.ucsd.edu/clinicalmed/links.htm>
2. [www.practicalclinicalskills.com/](http://www.practicalclinicalskills.com/)

# **Patient Assessment - Trauma - Practical**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

- Demonstration of patient assessment in emergency department, ward and field
- Immobilization devices
- Traction & Splinting
- Plaster of Paris

## **Recommended Books**

1. Macleod's clinical examination 10<sup>th</sup> edition Editor-John Macleod, John F. Munro- Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21<sup>st</sup> edition Editor-Michael Swash-Saunders Elsevier

## **Reference Books**

1. Manual of practical medicine- R. Alagappan 3rd edition- Jaypee
2. Davidson's Text book Of General Medicine

## **Online Resources**

1. <https://meded.ucsd.edu/clinicalmed/links.htm>
2. [www.practicalclinicalskills.com/](http://www.practicalclinicalskills.com/)

# HUMAN RIGHTS AND GENDER EQUITY

**Course:** AECC

**Number of Hours:** 30 Hours

**Credits:** 02

## **Course Objectives:**

- To make the student understand the human rights as citizens of India.

## **COURSE CONTENT:**

### **Unit 1: Human Rights** (5 Hours)

- Human Rights- Meaning
- Universal declaration of Human rights

### **Unit 2: Human Rights Advocacy** (5 Hours)

- Global Advocacy of human rights amnesty international and other organizations
- Peoples union for Civil Liberty(PUCL)
- Human Rights Commission in India
- Minority Commission in India
- Remedies against Violation of Human rights in India

### **Unit 3 : Gender Equity** (5 Hours)

- Key Concepts- Gender and sex- Masculinity and Femininity, Patriarchy- Matriarchy, Gender roles and attributes, Gender division of labour, Gender Bias, Gender Stereotypes, Need for Gender Sensitization.

### **Unit 4: Woman Status in India** (5 Hours)

- Important indicators- Sex Ratio, Education, Health, Nutrition, Maternal and Infant Mortality, Work Participation rate, Political Participation.

### **Unit 5: Contemporary Women's Issues** (5 Hours)

- Discrimination against Girl child
- Violence against women
- Problems of health and nutrition
- Women's education gender bias in education
- Trafficking in Women
- Globalization and Impact on Women

**Unit 6: State Initiatives on Gender Issues( 5 Hours)**

- Constitutional Rights of Women
- Laws Pertaining to Women
- The National Commission for Women

**Course Outcome:**

- Basic Knowledge of Human Rights and its function and authorities in society and industry women's status, issues and gender equity.

**Recommended Books:**

1. Parvathy Appaiah, Human Rights, Gender Equity and Environmental Studies, Shivam Books publishers, 2012.
2. Parvathy Appaiah, Human Rights, Gender Equity and Environmental Studies, Jai Bharath Prakashan publishers, 2016.
3. Parvathy Appaiah, Human Rights, Gender Equity and Environmental Studies, Jai Bharath Prakashan publishers, 2018-19.



# **BIOSTATISTICS**

**Course: AECC**

**Credit: 02**

**Number of Hours: 30**

## **Course Objectives:**

- Understands statistical terms.
- Possesses knowledge and skill in the use of basic statistical methods.

## **COURSE CONTENT:**

### **Unit 1: Introduction (3 hours)**

- Meaning, definition of statistics.
- Importance of the study of statistics.
- Branches of statistics.
- Statistics and health science including nursing.
- Parameters and estimates.
- Descriptive and inferential statistics.
- Variables and their types.
- Measurement scales

### **Unit 2 : Tabulation of Data**

**(3 hours)**

- Raw data, the array, frequency distribution
- Basic principles of graphical representation
- Types of diagrams - histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, olive.
- Normal probability curve.

**Unit 3: Measure of Central Tendency (4 hours)**

- Need for measures of central tendency
- Definition and calculation of mean - ungrouped and grouped
- Meaning, interpretation and calculation of median ungrouped and grouped
- Meaning and calculation of mode.
- Comparison of the mean, and mode.

**Unit 4: Measure of Variability (6 hours)**

- Need for measure of dispersion. The range, the average deviation.
- The variance and standard deviation.
- Calculation of variance and standard deviation ungrouped and grouped.
- Properties and uses of variance

**Unit 5: Probability and Standard Distributions (6 hours)**

- Meaning of probability of standard distribution.
- The Binominal distribution.
- The normal distribution.
- Divergence from normality - skewness, kurtosis.

**Unit 6: Sampling Techniques (5 hours)**

- Need for sampling - Criteria for good samples.
- Various sampling designs.
- Procedures of sampling and sampling designs errors.
- Sampling variation.
- Tests of significance.

## **Unit 7: Health Indicator**

**(3 hours)**

- Importance of health Indicator.
- Indicators of population, morbidity, mortality, health services.
- Calculation of rates and ratios of health.

### **Course Outcomes**

- Gains Knowledge in application of statistics in medical field and research.
- Possesses knowledge and skill in the use of basic statistical methods.

### **Recommended Books.**

1. Mahajan BK, Gupta MC. Textbook of preventive and social medicine. Jaypee Brothers; 1995.

## **SEMESTER V**

### **Trauma 1**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

#### **Course Objective**

1. Training to identify severity of injury
2. Training advanced bleeding management

#### **Syllabus**

##### **UNIT-I**

**5 Hours**

##### **Introduction to Trauma Management**

- Definition of trauma
- Trauma Assessment, Trauma Scoring.

##### **Musculoskeletal trauma:**

- Skeletal Fractures
- Principles of management of fractures
- Common fractures and joint injuries, Management of joint injuries

##### **UNIT-II**

**10 Hours**

##### **Lifting, Moving, and Handling of patients with multiple Injuries**

- Various devices associated with moving a patient in a pre-hospital set-up

##### **Bandaging and Splinting, Traction and Splinting, Spinal Immobilization**

- Functions of Muscular System
- Reasons for splinting, general rules of splinting

- Complications of Splinting
- Signs and Symptoms of Potential Spine Injury
- Stabilization of cervical spine
- Airway emergency medical care techniques for a patient with suspected spine injury

### **UNIT-III**

**15 Hours**

#### **Soft Tissues Injuries and disorders:**

- Layers of the skin & Types of closed and open soft tissue injuries
- Nature and mechanism of soft tissue injury
- Management of soft tissue injuries

#### **Bleeding Management**

- Types of bleeding, External Bleeding – Severity & Emergency medical care
- Methods to control external bleeding & Special areas (bleeding from the nose, ears, or mouth)
- Internal Bleeding – severity, relationship to mechanism of injury
- Signs and symptoms of internal bleeding, Emergency Medical Care

### **UNIT-IV**

**15 Hours**

#### **Hypovolumic Shock**

- Severity, signs and symptoms of shock, Emergency medical care.

#### **Head injury**

##### **Presentation of Head injury**

- Assessment and investigation
- Management

## **Course Outcome**

1. Able to identify severity of injury
2. Advanced bleeding management

## **Recommended Books:**

- Suresh S. David: Handbook of Emergency Medicine ,Elsevier India
- S.V.Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll: The Nurse Practitioner PracticeGuide-:For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- Aggarwal Praveen, George K. Mathew: Medicine:Prep Manual for Under graduates; Elsevier India
- salyer, stevenw. *The Physician Assistant Emergency Medicine Handbook*. Philadelphia:Saunders

## **Trauma 1-Practical**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

- Biochemical , Radiological Investigations on receiving the trauma patient emergency department
- Continuous Monitoring of Patient in Emergency Medicine Department.
- Clearing the airway, suctioning the oropharynx, stabilizing the Spinalcord and Positioning the Patient in poly trauma, Oxygen Therapy.
- Assessment of Level of Consciousness in trauma
- Recognition and Management of Hemorrhagic Shock in EMD

### **Recommended Books:**

- SureshS.David: Handbook of Emergency Medicine,Elsevier India
- S.V.Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
- Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
- Robert L. Wilkins, James K. Stoller, Craig L. Scanlan: Egan's Fundamentals of
- Respiratory Care [with Study Guide] Mosby Publication

# **E m e r g e n c y Obstetrics & Neonatal Care**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

## **Course Objective:**

1. The student is able to assess the physical changes that take place in a child bearing woman.
2. The students gain knowledge on the specific injuries that can occur in pregnancy.

## **COURSE CONTENT**

### **UNIT-I**

**10 Hours**

#### **Anatomical and physiological changes that occur during pregnancy**

- Anatomy of female reproductive system
- Menstrual cycle

#### **Diagnosis of pregnancy**

- First trimester
- Second trimester
- Last trimester
- Differential diagnosis of pregnancy

### **UNIT-II**

**10 Hours**

#### **Hypertensive Disorders in Pregnancy**

- Pre Eclampsia
- Eclampsia
- Essential Hypertension in Pregnancy



### **Normal Labour**

- Causes of Onset
- Physiology
- Mechanism
- Management
- Post partum hemorrhage

### **Pharmacotherapeutics in Obstetric**

- Oxytocin
- Analgesia and Anaesthesia

### **UNIT-III**

**10 Hours**

### **Malposition, Malpresentation, Cord Prolapse**

- Occipito posterior position
- Breech presentation
- Face presentation
- Brow presentation
- Cord prolapse
- Transverse lie

### **Antepartum hemorrhage**

- Placenta Praevia
- Abruptio Placenta

### **Haemorrhage in Early Pregnancy**

- Abortion
- Ectopic pregnancy

## **UNIT-IV**

**10 Hours**

### **Neonatal resuscitation**

- Newborn care and assessment
- APGAR scoring
- Premature infant care
- Fetal monitoring

## **UNIT-V**

**5 Hours**

### **Trauma in Pregnancy**

- Mechanism
- Assessment and Management.

### **Course Outcome**

- Able to gain knowledge about physical changes that take place in a child bearing woman.
- Knowledge on the specific injuries that can occur in pregnancy.

### **RECOMMENDED BOOKS:**

1. Textbook of Obstetrics 6<sup>th</sup> edition, Dutta-New central book Agency
2. Mudaliar and Menon Clinical Obstetrics-10<sup>th</sup> edition, Sarala Gobalan & Vanitha Jain-Orient Longman
3. Essentials of Obstetrics, 1<sup>st</sup> edition, Sabarathnum Arulkumar, V. Sivanesarathnum-Jaypee

### **REFERENCE BOOKS:**

1. Textbook of obstetrics, Sheik Balakrishnan – 1<sup>st</sup> edition, Hawkins and Bourne
2. Shaw's textbook of gynecology – 18<sup>th</sup> edition, V.G. Padubidri, S.N Daffary
3. Manual of Obstetrics – 3<sup>rd</sup> edition, Shirish N Daffray, Sudip Chakravarti

### **ONLINE REFERENCES**

1. WWW. emedicine - Medscape reference
2. WWW. WebMD reference

# **E m e r g e n c y Obstetrics & Neonatal Care - Practical**

**Course: Core**

**Number of hours: 60 hours**

**Credits: 03**

- History taking, Examination and Presentation of Pregnant Woman

## **RECOMMENDED BOOKS:**

1. Textbook of Obstetrics 6<sup>th</sup> edition, Dutta-New central book Agency
2. Mudaliar and Menon Clinical Obstetrics-10<sup>th</sup> edition, Sarala Gobalan & Vanitha Jain-Orient Longman
3. Essentials of Obstetrics, 1<sup>st</sup> edition, Sabarathnum Arulkumaran, V. Sivanesarathnum-Jaypee

## **REFERENCE BOOKS:**

1. Textbook of obstetrics, Sheik Balakrishnan – 1<sup>st</sup> edition, Hawkins and Bourne
2. Shaw's textbook of gynecology – 18<sup>th</sup> edition, V.G. Padubidri, S.N Daffary
3. Manual of Obstetrics – 3<sup>rd</sup> edition, Shirish N Daffray, Sudip Chakravarti

## **ONLINE REFERENCES**

3. [Www. emedicine - Medscape reference](#)
4. [WWW. WebMD reference](#)

# **Paediatric, Geriatric & Psychiatric Emergencies**

**Course: Core**

**Number of hours: 45 hours**

**Credits: 03**

## **Course Objective**

1. Training to manage geriatric emergencies, paediatric emergencies & psychiatric emergencies.

## **UNIT-I**

**15 Hours**

### **Pediatric Emergencies:**

- Identify the developmental considerations for \_ Infants, Toddlers, pre-school, School age adolescent.
- Describe differences in anatomy and physiology of the infant, child and adult patient.
- Differentiate the response of the ill or injured infant or child (age specific) from that of adult.
- Differentiate between the injuries patterns in adults, infants, and children.
- Field management of the infant and the child trauma patient
- Child abuse and neglect – indicators, management, medical legal responsibilities
- Infant and Child transport – Special considerations and difficulties in lifting and moving techniques

## **UNIT-II**

**10 Hours**

### **Geriatric patient**

- Geriatric Abuse
- Approach to the geriatric patient in the EMD
- Fall in elderly-presenting symptoms, clinical assessment, basic initial management

## **UNIT-III**

**10 Hours**

### **Patient with Psychiatric illness**

- Acute mania, Anxiety and panic attacks-presenting symptoms, clinical assessment, basic initial management
- Depression-presenting symptoms, clinical assessment, basic initial management
- Restraints, pharmacological restraint and medico-legal issues of restraint.

#### **UNIT-IV**

**10 Hours**

#### **Sample History:**

- Allergies, Medications, Pertinent past history
- Last oral intake, Events leading to injury etc

#### **Definitions of:**

- Consent
- Assault/Battery
- Refusal
- Abandonment
- Negligence
- Confidentiality

#### **Course Objective**

1. Trained to manage geriatric emergencies, paediatric emergencies & psychiatric emergencies.

#### **Recommended Books**

- SureshS.David:Handbookof EmergencyMedicine ,ElsevierIndia
- S.V.Mahadevan, GusM.Garmel:An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll:The Nurse Practitioner PracticeGuide-:For Emergency Departments, UrgentCare Centers,andFamilyPractices,FOURTHEDITION; Acute CareHorizons,LLC
- Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual
- RobertL. Wilkins, JamesK.Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mos by Publication Salyer, stevenw. The Physician Assistant Emergency Medicine

## Paediatric, Geriatric & Psychiatric emergencies - Practical

Course: Core

Number of hours: 60 hours

Credits: 04

- Recognition and Management of dehydration and hypovolemia in EMD Loading the drugs, Calculating dose, dilution of the drug, Administration of
- Drugs by IM, IV, SC Intradermal Test dose. Starting an IV Infusion/Nebulisation in EMD.

Biochemical, Radiological Investigations on receiving the patient surgical emergencies in emergency department

- Assessment of child in the Emergency Department Airway management and resuscitation of an infant Airway management and resuscitation of a child

### Recommended Books

- SureshS.David: Handbook of Emergency Medicine ,Elsevier India
- S .V.Mahadevan, GusM. Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll: The Nurse Practitioner Practice Guide-:For Emergency Departments, UrgentCare Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- RobertL. Wilkins, JamesK.Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mos by Publication
- Salyer, stevenw.The *Physician Assistant Emergency Medicine*

## **SEMESTER VI**

### **Medical Emergencies-II**

**Course: Core**

**Number of hours: 45 hours**

**Credits: 03**

#### **Course Objective**

1. Training for manage gastrointestinal, renal, endocrine and metabolic emergencies in the field and emergency department.
2. Training to manage poisoning & toxicology emergencies.
3. Training to assess and management of animal bites & drowning.

#### **COURSE CONTENT**

##### **UNIT-I**

**10 Hours**

##### **Gastrointestinal Emergencies**

Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management of

Acute gastroenteritis

Upper GI bleed

Lower GI Bleed

Acute pancreatitis

##### **UNIT-II**

**10 Hours**

##### **Endocrine and Metabolic Emergencies**

Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management of

- Hypoglycemia
- Hyperosmolar hyperglycemic state
- Diabetic keto acidosis
- Adrenal crisis
- Myxedema coma
- Thyroid storm

### **UNIT-III**

**10 Hours**

#### **Renal Emergencies**

Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management of

- Urinary tract infections
- Acute renal failure
- Acute pulmonary edema internal failure

### **UNIT-IV**

**5 Hours**

#### **Bites and Stings**

- Snake bites-common Indian venomous snakes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management
- Animal bites-dog bites, wild animal bites, early management and rabies prophylaxis
- Bee, wasp, spider, scorpion and other stings-initial management



## UNIT-V

10 Hours

### Environmental Emergencies

The risk factors, patho physiology, assessment findings and management of:

- Specific hyperthermia conditions.
- Drowning and near drowning.
- Specific Hypothermic conditions and Frostbite.
- Diving emergencies and high altitude illness.
- Mechanical effects on the body based on knowledge of basic properties of gases.
- Poisoning and drug over dose-Decontamination, common poisons encountered, basic initial management.
- Anaphylaxis, Purpura, Urticaria, Fixed drug eruptions, Toxic epidermo necrolysis, Steven Johnson's syndrome.

### Course Outcome

1. Trained to manage gastrointestinal, renal, endocrine and metabolic emergencies in the field and emergency department.
2. Able to manage poisoning & toxicology emergencies.
3. Trained to assess and management of animal bites & drowning.

### Recommended Books

- Suresh S.David: Handbook of Emergency Medicine ,ElsevierIndia
- S.V.Mahadevan, GusM.Garmel:An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll:The Nurse Practitioner Practice Guide-:For Emergency Departments, UrgentCare Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India.
- RobertL. Wilkins, JamesK.Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mos by Publication
- Salyer, stevenw. *The Physician Assistant Emergency Medicine Handbook*. Philadelphia: Saunders

## **Medical Emergencies II- Practical**

**Course: Core**

**Number of hours: 60 hours**

**Credits: 03**

- Assessment, Evaluation and management of Unconscious patient
- Evaluation and immediate management of Patient with Chest Pain
- First aid for various medical and Surgical Emergencies
- Connecting Multi Para monitor and interpretation of Various Values on the Monitor, Interventions depending on the Various Vital Parameters. Continuous Monitoring of patient in EMD
- Documentation of Initial assessment and progress Handing over the Patient ICU/ HDU or ward staff Inter Hospital Transfer of Patients
- Conducting Bio chemical and Radiological Investigations and Interpretation of results

### **Recommended Books**

- SureshS. David: Handbook of Emergency Medicine ,Elsevier India
- S.V.Mahadevan, GusM.Gary mel:An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll: The Nurse Practitioner Practice Guide-: For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India
- RobertL. Wilkins, JamesK.Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mos by Publication

# **Disaster Management**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

## **Course Objective**

1. Trained to be part of a disaster preparedness team.

## **COURSE CONTENT**

### **UNIT-I**

**15 Hours**

#### **Introduction on Disaster**

- Different Types of Disaster:
- Natural Disaster: such as Flood, Cyclone, Earthquakes, Landslides etc
- Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological Disasters, Accidents (Air,Sea,Rail& Road),Structural failures(Building and Bridge),War& Terrorism etc.
- Causes, effects and practical examples for all disasters.
- Understanding Disasters Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability,Risk,Capacity–Disaster and Development, and disaster management

### **UNIT-II**

**15 Hours**

#### **Emergency First Aid at Disaster Site.**

- Emergency Medical Triage
- Patient transport and logistics management
- Medical/Hospital contingency planning

- Disaster Preparedness
- Disaster Preparedness: concept and significance
- Disaster Preparedness Measures and Plan essentials

Essential Components of Disaster response, Disaster Response Plan, Resource, Management- Financial, Medical, equipment, communication, Human, transportation, Directing and controlling functions

Communication, Participation & activation of Emergency Preparedness Plan, Logistics Management, Emergency support functions, Need and damage assessment

Institutional Mechanism for Disaster Preparedness

Disaster preparedness with special needs/vulnerable groups

- Disaster Preparedness: Policy and Programmes Practical: Mock Disaster management  
Drill Disaster Preparedness
- Designating EMD as Command centre during Disaster
- Assigning Roles during Disaster

## **UNIT-II**

**15 Hours**

### **Types of triage**

- Simple Triage and Rapid Treatment
- Simple triage and evacuation
- Advanced triage
- Disaster First Aid (DFA) and advanced triage
- Mass casualty incident triage system
- Introduction and Goals of MCI triage
- MCI triage considerations for hospitals
- Problems with MCI Triage
- Operational Difficulties with MCI Triage

## **Course Outcome**

1. Rational decision making capability.
2. Leadership quality

## **Recommended Books**

- Disaster Mmanagement Guidelines, GOI-UND Disaster Risk Program (2009-2012)
- Damon, P.Copola, (2006) Introduction to International Disaster Management, Butterworth Heineman.
- Gupta A.K., Nair S.Sand Chatterjee S (2013) Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.
- Murthy D.B.N.(2012) Disaster Management, Deep and Deep Publication PVT.Ltd. New Delhi.
- ModhS. (2010) Managing Natural Disasters, MacMillan publishers India LTD

## **Disaster Management – Practical**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

- Demonstration in ward and field

### **Recommended Books**

- Disaster Management Guidelines, GOI-UND Disaster Risk Program (2009- 2012)
- Damon, P.Copola,(2006) Introduction to International Disaster Management, Butterworth Heineman.
- Gupta A.K.,Niar S.SandChatterjee S.(2013)Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.

## **T r a u m a 2**

**Course: Core**

**Credits: 03**

**Number of hours: 45 hours**

Course Objective

1. Students will be trained to manage trauma patients in the field and emergency department.

### **UNIT-I**

**10 Hours**

Maxillofacial Trauma

Classification of facial fractures

Presentation of maxillofacial fractures

- Assessment and investigation
- Treatment of facial fractures

### **Unit II**

**10 Hours**

Thoracic Trauma

Blunt and penetrating trauma, the open sucking chest wound, tension pneumothorax, cardiac tamponade, rib fractures, flail chest, pneumothorax, hemothorax, presenting symptoms, clinical assessment and point of care, investigations in the field and emergency department, basic initial management

### **Unit III**

**10 Hours**

Abdominal Trauma

Blunt and penetrating trauma, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, Initial management of evisceration.

## **Unit IV - 10 Hours**

### Spinal injury

Spinal shock, neurogenic shock, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management

## **Unit V**

**5 Hours**

- Burns & Associated Injuries
- Type, depth and percentage of burns
- Fluid resuscitation-Parkland formula, choice of fluid
- Criteria for referral to burns centre
- Escharotomy/Fasciotomy
- Medico legal aspects
- Electrocutation: Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management.

### Course Outcome

1. Able to manage trauma patients in the field and emergency department.

### **Recommended Books**

- SureshS. David: Hand book of Emergency Medicine; Elsevier India
- S.V.Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll: The Nurse Practitioner PracticeGuide-:For Emergency Departments, Urgent Care Centers and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual for Undergraduates; Elsevier India



## **T r a u m a 2 - Practical**

**Course: Core**

**Credits: 03**

**Number of hours: 60 hours**

- Trauma emergencies, Preparing an ambulance for trauma
- Responding to a call and scene management of trauma
- Receiving, Triage and resuscitating a patient with trauma in the emergency department
- Initial Assessment of Trauma in the Emergency Department
- Documentation of Vital Parameters

### **Recommended Books**

- SureshS.David: Handbook of Emergency Medicine ,ElsevierIndia
- S.V.Mahadevan, GusM.Garmel:An Introduction to Clinical Emergency Medicine; Cambridge University Press
- DonaldC.Correll: The Nurse Practitioner Practice Guide-:For Emergency Departments, Urgent Care Centers, and Family Practices, FOURTH EDITION; Acute Care Horizons, LLC
- RobertL. Wilkins, JamesK.Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mos by Publication
- salyer, stevenw. *The Physician Assistant Emergency Medicine Handbook*. Philadelphia:Saunders

## **CLINICAL INTERNSHIP**

The internship time period provides the students the opportunity to continue to develop confidence and skill in diagnosis and management. Students will demonstrate competence in beginning, intermediate, and advanced procedures in above areas. Students will participate in advanced and specialized treatment procedures. The student will complete the clinical training by practicing all the skills learned in class room and clinical (emergency department) instruction. The students are expected to work for minimum 6 hours per day/night and this may be more depending on the need and the health care setting.