REGULATIONS AND CURRICULUM GOVERNING

B.Sc. TRAUMA CARE MANAGEMENT PROGRAM

(Academic year from which the curriculum is implemented/ revised/ amended)
Implemented Year 2020
Revised in 2020
Amended Up to 2025

Name of the Constituent Unit: Yenepoya School of Allied Health Sciences

RABBI ZIDNI 'ILMA

YENEPOYA
(DEEMED TO BE UNIVERSITY)

Deralakatte, Mangalore, Karnataka.

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NOTIFICATION FROM THE UNIVERSITY

SI. No.	ACM with Date	Decision/Approval
1	38th ACM/ 27.04.2020	Starting of B.Sc. Emergency Medicine Technology
2	38th ACM/ 27.04.2020	Revised curriculum of the existing B.Sc. Emergency Medicine Technology
3	39th ACM/ 27.08.202	Reallocation of existing / proposed courses under respective faculties. Faculty of Allied and Health Professions – B.Sc. Emergency Medicine Technology
4	42nd ACM/ 22.03.2021	Modification in the nomenclature of B.Sc. Emergency Medicine Technology to B.Sc. Trauma Care Management
5	51st ACM/ 20.11.2023	Introduction of New National Credit Framework (NCRF) for all undergraduate programs under the Faculty of Allied and Healthcare Professions
6	54th ACM/ 20.11.2023	Increased intake of seats of B.Sc. Trauma Care Management from 50 to 70
7	58th ACM/ 13.08.2024	Amendment in the scheme of examination and dissertation credits distribution of 2022 batch Integrated B.Sc.-M.Sc. Program
8	61st ACM/ 13.02.2025	The amendment in the syllabus of the course “Pathology & Microbiology II” of the B.Sc. Technology Program was Approved.
9	64th ACM/ 14.08.2025	Implementing Ability Enhancement Course “English and Communication” in all B.Sc. Technology Programs under the Faculty of Allied & Healthcare Professions was approved.

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CONTENTS

S. No.	Particulars	Page numbers
1.	Preamble	1
2.	Definitions	2-12
3.	Eligibility for Admission	12
4.	Duration of the Program	12
5.	Maximum Period for Completion of the Program	12
6.	Aim of the Program	12
7.	Outcomes of the Program • Program Outcomes	13
	• Program Structure	14-17
8.	Attendance	17-18
9.	Teaching-Learning Methods Course wise	18-19
10.	Scheme of Examination	20-24
11.	Eligibility to appear for University Examination	24-25
12.	Criteria for Passing	225-26
13.	Grading and Classification	26-28
14.	Any other information	28-30
15.	Syllabus	30-164
16.	Annexures	165

1. Preamble

Health care sector has become one of the largest employment-generating 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 introduced National Higher Education Quality Framework (NHEQF), the program is designed in way the curriculum is student centric having flexible Choice Based Credit System with value based holistic multidisciplinary approach.

B.Sc. Trauma Care Management 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.

2. Definition

2.1 Academic Year: Two consecutive (one odd + one even) semesters constitute one academic year.

2.2 Semester system /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 the course content and hours of teaching. 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.

An academic year shall consist of two semesters;

Odd Semester 1st, 3rd, 5th& 7th	September/October to February/March
Even semester 2nd, 4th, 6th& 8th	March/April to August/September

2.3 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, or a combination of these. The courses can be of the following types that is core, ability enhancement, skill enhancement, multidisciplinary electives and internship.

2.4 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.

	Lecture - L	Tutorial - T	Practical - P	Clinical Training/Rotation
1 Credit	1 Hour	1 Hour	2 hours	3-5 Hours

Credit Hours for different types of courses: Each course may have only a lecture component or a lecture and tutorial component or a lecture and practicum component or a lecture, tutorial, and practicum component, or only practicum component. For example, a three-credit lecture course in a semester means three one-hour lectures per week with each one-hour lecture counted as one credit. In a semester of 15 weeks duration, a three-credit lecture course is equivalent to 45 hours of teaching.

One credit for tutorial work means one hour of engagement per week. In a semester of 15 weeks duration, a one-credit tutorial in a course is equivalent to 15 hours of engagement.

A one-credit course in practicum or lab work, community engagement and services, and fieldwork in a semester mean two-hour engagement per week. In a semester of 15 weeks duration, a one-credit practicum in a course is equivalent to 30 hours of engagement.

A one-credit of Seminar or Internship or Studio activities or Field practice/projects or Community engagement and service means two-hour engagements per week. Accordingly, in a semester of 15 weeks duration, one credit in these courses is equivalent to 30 hours of engagement.

A course can have a combination of lecture credits, tutorial credits, and practicum credits. For example, a 4–credit course with three credits assigned for lectures and one credit for practicum shall have three 1-hour lectures per week and one 2-hour duration field-based learning/project or lab work, or workshop activities. In a semester of 15 weeks duration, a 4-credit course is equivalent to 45 hours of lectures and 30 hours of practicum. Similarly, a 4 – credit course with 3- credits assigned for lectures and one credit for tutorial shall have three 1-hour lectures per week and one 1-hour tutorial per week. In a semester of 15 weeks duration, a four-credit course is equivalent to 45 hours of lectures and 15 hours of tutorials.

Experiential learning credit is equal to 3-hour duration per week. For example, 1 credit for experiential learning will mean 45 hours of learning.The credits assigned to the course is indicated as L:T:P format. For example, for a 4credit course format could be: 4:0:0 or 1:2:1 or 3:1:0 or 0:0:4etc.

2.5 **Programme**: An educational program leading to award of a degree, diploma or certificate. The following types of courses/activities constitute the programmes of study. Each of them will require a specific number of hours of teaching/guidance and laboratory/studio/workshop activities, field-based learning/projects, internships, and community engagement and service

a. **Lecture courses:** Courses involving lectures relating to a field or discipline by an expert or qualified personnel in a field of learning, work/vocation, or professional practice.

b. **Tutorial courses:** Courses involving problem-solving and discussions relating to a field or discipline under the guidance of qualified personnel in a field of learning, work/vocation, or professional practice.

c. **Practicum or Laboratory work:** A course requiring students to participate in a project or practical or lab activity that applies previously learned/studied principles/theory related to the chosen field of learning, work/vocation, or professional practice under the supervision of an expert or qualified individual in the field of learning, work/vocation or professional practice.

d. **Seminar:** A course requiring students to participate in structured discussion/conversation or debate focused on assigned tasks/readings, current or historical events, or shared experiences guided or led by an expert or qualified personnel in a field of learning, work/vocation, or professional practice.

e. **Internship:** A course requiring students to participate in a professional activity or work experience, or cooperative education activity with an entity external to the education institution, normally under the supervision of an expert of the given external entity. A key aspect of the internship is induction into actual work situations. Internships involve working with local industry, government or private organizations, business organizations, artists, crafts persons, and similar entities to provide opportunities for students to actively engage in on-site experiential learning.

f. **Studio activities:** Studio activities involve the engagement of students in creative or artistic activities. Every student is engaged in performing a creative activity to obtain a specific outcome. Studio-based activities involve visual- or aestheticfocused experiential work.

g. **Field practice/projects:** Courses requiring students to participate in field-based learning/projects generally under the supervision of an expert of the given external entity.

h. **Community engagement and service:** Courses requiring students to participate in field-based learning/projects generally under the supervision of an expert of the given external entity. The curricular component of 'community engagement and service' will involve activities that would expose students to the socio-economic issues in society so that the theoretical learnings can be supplemented by actual life experiences to generate solutions to real-life problems.

i. **Experiential learning activities:** Field project work / Day out learning activities etc are considered as experiential activities.

2.6 Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

2.7 Credit Point: It is the product of grade point and number of credits for a course.

2.8 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.

2.9 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.

2.10 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.

2.11 Transcript or Grade Card or Certificate: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester.

2.12 Academic Bank Account: means an individual account with the Academic Bank of Credits opened and operated by a student, to which all academic credits earned by the Student from course(s) of study are deposited, recognized, maintained, accumulated, transferred, validated or redeemed for the purposes of the award of degree/diploma/certificates etc. by an awarding institution.

2.13 Academic Bank of Credits: means the provision for innovative and interchangeable curricular structures to enable creative combinations of Courses or Programmes in Disciplines of study leading to Degree or Diploma or Post Graduate Diploma or Certificate of Study offering multiple entry and multiple exit facilities, while removing rigid curricular boundaries and creating new possibilities of life-long learning;

2.14 Credit-accumulation: means the facility created by Academic Bank of Credits in the Academic Bank Account opened by students in order to transfer and consolidate the credits earned by them by undergoing Courses.

2.15 Credit-redemption: means the process of commuting the accrued credits in the Academic Bank Account of the students maintained in ABC for the purpose of fulfilling the credits requirements for the award of Degrees or Diplomas certificates or Course work for Ph.D. programme etc., by the registered degree-awarding Higher Educational Institutions;

2.16 Credit-transfer: Means the mechanism by which the Registered Higher Educational Institutions are able to receive or provide prescribed credits to individual Academic Bank Accounts in adherence to the University Grants Commission credit norms for the 'course/s' undertaken by students enrolled in any Registered Higher Education Institution within India.

2.17 Curriculum Components of the B.Sc. Trauma Care Management Programme:

Courses in the programme may be of the following types:

a. Core Course
b. Skill Enhancement Course (SEC)
c. Ability Enhancement Course (AEC)
d. Value Added Course (VAC)
e. Multidisciplinary Elective (ME)
f. Internship

a. **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 the major disciple/subject having main focus and degree will be awarded in this discipline. This core course provides opportunity for our student to pursue in depth study of a particular subject or discipline hence, it is compulsorily studied by a student as a core requirement to complete the program of study in a said discipline. Every Core course shall be restricted to a minimum of 4 credits.

b. **Skill enhancement course:** SEC courses are aimed at imparting practical skills, hands- on training, competencies etc to enhance the skill based knowledge and thus the employability of the students.

c. **Ability Enhancement Courses (AEC):** These are the courses which aim to provide the students the competency in a modern Indian language(MIL) and in the English language with special emphasis on language and the communication skills. The courses aim at enabling the students to acquire and demonstrate the core linguistic skills, including critical reading and expository and academic skills, that helps students articulate their arguments and present their thinking clearly and coherently and recognize the importance of language as a mediator of knowledge and identity. The courses will also emphasize the development and enhancement of skills such a communication, and the ability to participate/ conduct discussion and debate.

d. **Value Added Courses (VAC):** These are the courses relating to understanding India, environmental science/ education, Health and Wellness etc..

i. **Constitution of India:** The course aims at enabling the students at acquire and demonstrate the knowledge and understanding of contemporary India with its historical perspective, the basic framework of the goals and policies of National development, and the constitutional obligations with special emphasis on constitutional values and fundamental rights and duties

ii. **Environmental Studies:** The course aims to equip the students with the ability to apply the acquired knowledge, skills, attitudes, and values require to take appropriate actions for mitigating the effects of environmental degradation, climate change, and pollution, effective waste management, conservation of biological diversity, management of biological resources, forest and wild life conservation, and sustainable development and living.

iii. **Human Rights & Gender equity:** The Course emphasis understanding social justice issues and roles of human rights in promoting equitable society including international, national perspective, contemporary issues with this holistic coverage and relevance to today's world.

iv. **Medical Ethics:** The course deals with ethics involving fundamental and moral issues related to decision making while performing professional practice. It guides the students in systematic and rational way of working through dilemmas and to determine the best course of action in their field of practice.

e. **Multidisciplinary Electives (ME):** These courses are intended to broaden the intellectual experience and form part of liberal arts and science education. Students are not allowed to choose or repeat courses already undergone at the higher secondary level (Twelfth class). The courses relating to any of the broad discipline given below will come under this category.

i. **Natural and Physical Sciences:** Students can choose basic courses from disciplines such as natural science, for example, Biology, Botany, Zoology, Biotechnology, Biochemistry, Chemistry, Physics, Biophysics, Astronomy and Astrophysics, Earth and Environmental sciences, etc.

ii. **Mathematics, Statistics and computer applications:** Courses under this category will facilitate the students to use and apply tools and techniques in their major and minor disciplines. The course may include training in programming software like python among others and application software like STATA, SPSS, TALLY, etc. Basic courses under this category will be helpful; for science and social science in data analysis and the application of quantitative tools.

iii. **Library, Information, and Media Sciences:** Courses from this category will help the students to understand the recent developments in information and media science (journalism, Mass Media, and Communication)

iv. **Commerce and Management:** Courses include business management, accountancy, financial institutions, Fintech, etc.,

v. **Humanities and Social Sciences:** The courses relating to social sciences, for example, Anthropology, Communication and Media, Economics, History, Linguistics, Political science, Psychology, Social work, Sociology, etc. will enable students to understand the individuals and their social behavior, society and nation. Students be introduced to survey methodology and available large–scale databases for India. The courses under humanities include for example, Archeology, History, Comparative Literature, Arts and Creative Expressions, Creative writing and literature, language(s), philosophy etc., and interdisciplinary courses relating to humanities. The list of courses that can include interdisciplinary subjects such as cognitive science, environmental science, gender studies, global environment and health, international relations, political economy and development , sustainable development, Women's and gender studies , etc. will be useful to understand society.

The Multidisciplinary elective offered by Yenepoya (Deemed to be University) includes:

i. **First Aid and Basic Life Support (BLS):** This Course deals with

training the students to be a first responder when there are medical or traumatic emergencies.

ii. **Yoga:** The course develops a comprehensive understanding of yoga, including its history, various schools, practices, and their application in daily life, while also recognizing its potential for personal well-being, professional growth, and promoting positive health.

iii. **Vermitechnology:** This category of course will help students to gain skills in using worms to convert decomposing food waste into nutrient-rich fertilizer in simple, inexpensive and energy efficient way.

iv. **Positive Psychology:** The course will enable students to enrich themselves to thrive on the belief that people want to lead meaningful and fulfilling lives, cultivate what is best within them, and enhance their experiences of love, work, and play.

v. **National Service Scheme (NSS):** Students can choose NSS to understand the basic concept of NSS, to identify the needs and problems of the community in which they work and to gain skills in mobilizing community participation.

vi. **Lifestyle Management:** This course will help students to learn to achieve health goals through lifestyle and behavior adjustments by creating healthy habits as well as stress management.

vii. **Youth Red Cross:** The course deals with providing knowledge on Youth Red Cross volunteership and identifying the role of youth in humanitarian service. It also enables youth to promote national and international understanding by using international link of the movement.

viii. **Jeevan Kaushal:** University Grant Commission identified 4 modules on life skills (Jeevan Kaushal), the skills that required through our life. Jeevan Kaushal courses such as Communication skills, Professional Skills, Leadership and Management skills and Universal Human Values which will help students in developing personal competencies that helps to deal with challenges of life effectively thereby realizing his/her infinite potential as a human being.

ix. **Self – learning courses:** In accordance with the UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2021, New Delhi, dated 25th March 2021, and reference No.F.1-100/2016 (MOOCs/e-content),

students are encouraged to augment their learning experience by opting for Massive Open Online Courses (MOOCs), Study Webs of Active Learning for Young Aspiring Minds (SWAYAM), and Coursera courses as part of the multidisciplinary elective.

Yenepoya (Demed to be University) will adhere to UGC regulations governing MOOCs/SWAYAM/Coursera courses, incorporating amendments as communicated by UGC over time.To facilitate the seamless completion of chosen courses, the department will appoint a designated course coordinator. The coordinator will guide and support students throughout the duration of the selected online courses.

The evaluation process will adhere to predefined norms and parameters, which will be communicated in the course overview at the time of offering

In Coursera, the assessment are multifaceted and include quizzes or tests at the conclusion of each module, assignments or projects demonstrating the practical application of concepts, active participation in discussion forums, and peer-reviewed assessments. The culmination of each course involves final quizzes or capstone projects tailored to the course's content. Upon successful completion, students receive an online certificate, Yenepoya (Deemed to be University) will integrate the acquired credits into the student's official marks sheet.

In SWAYAM, Assessment will include formative continuous online assessments and end-of-course proctored exams, all of which are mandatory for successful completion by the student. Yenepoya (Deemed to be University) will integrate the marks or grade achieved by the student, conveyed by the Host Institution through the PI of the SWAYAM course, into the student's official marks sheet. These marks contribute to the final award of the degree conferred by the University.

f. Internship:-

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.

3. Eligibility for Admission

To be eligible for admission in B. Sc. Trauma Care Management, 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.

4. 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 Trauma Care Management (B.Sc. TCM).

5. Maximum period for completion of the program

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.

6. Aim of the Program

The Trauma Care Management programme aims to train students to deliver timely, safe, and effective pre-hospital and emergency care. The programme focuses on developing strong clinical skills, critical thinking, and decision-making abilities needed to assess, stabilize, and manage patients during medical, trauma, obstetrics, pediatric, neonatal, and disaster emergencies, while promoting teamwork, ethical practice, and effective communication to improve patient outcomes.

7. **Programme Outcome**

PO1: At the end of the Program, students should be able to demonstrate knowledge about emergency medical care services (K)

PO2: Demonstrate the ability to handle various equipment and perform clinical skills essential in providing basic and advanced emergency medical care services (K,S)

PO3: Ability to work as part of a multidisciplinary team during an emergency. And be an active member of the disaster management team and the technical rescue team (K,S,A)

PO4: Demonstrate setting of an ambulance for dealing with emergency situations, safe and efficient transferring and ambulation techniques, and Practice infection control measures in the ambulance (K,S,A,C)

PO5: Demonstrate techniques to maintain the personal hygiene needs of oneself and the patient (K,S,C)

PO6: Able to communicate accurately and appropriately in the role of Emergency Medical technician (K,A,C)

PO7: Ability to stay calm and make the right decisions in Critical or adverse conditions. (K,A)

PO8: Able to prepare the medications and Administration of various drugs in emergencies and as a routine (K,S)

PO9: Patient Assessment Stabilization and Immobilization: General Examination, Vitals, ECG Recording, usage of SMRDs (K,S,A)

PO10: Able to manage/resuscitate injured or sudden illnesses by applying a variety of pre-hospital simple and advanced treatments or surgical procedures (Basic Life Support [BLS], Advanced Cardiac Life Support [ACLS], International Trauma Life Support [ITLS], Prehospital Trauma Life Support [PHTLS] Protocols) (K,S,AC)

Program Structure:

	Broad category of course	Hours/Credits	Course (Title + Course Code)
1.	**Discipline-Specific Courses**		
a)	Theory	**I Semester**	
		60 Hours / 4 Credits	Human Anatomy & Physiology - I
		60 Hours / 4 Credits	Pathology & Microbiology - I
		60 Hours / 4 Credits	Introduction to Emergency Service - I
		II Semester	
		60 Hours / 4 Credits	Human Anatomy & Physiology - II
		60 Hours / 4 Credits	Pathology and Microbiology – II
		60 Hours / 4 Credits	Biochemistry
		60 Hours / 4 Credits	Emergency Department Equipment - I
		III Semester	
		60 Hours / 4 Credits	Systemic Pathology
		60 Hours / 4 Credits	Applied Microbiology
		60 Hours / 4 Credits	General Pharmacology
		60 Hours / 4 Credits	Patient Assessment - Medical
		60 Hours / 4 Credits	Introduction to Emergency Services - II
		IV Semester	
		60 Hours / 4 Credits	Emergency Department Equipment – II
		60 Hours / 4 Credits	Medical Emergencies - I
		60 Hours / 4 Credits	Patient Assessment - Trauma
		V Semester	
		60 Hours / 4 Credits	Trauma – I

	Broad category of course	Hours/Credits	Course (Title + Course Code)
		60 Hours / 4 Credits	Emergency Obstetrics and Neonatal Care
		60 Hours / 4 Credits	Pediatric, Geriatric & Psychiatric Emergencies
		VI Semester	
		60 Hours / 4 Credits	Medical Emergencies – II
		60 Hours / 4 Credits	Disaster Management
		60 Hours / 4 Credits	Trauma - II
b)	Practical (SEC)*	**I Semester**	
		90 Hours / 3 Credits	Introduction to Emergency Service - I
		II Semester	
		90 Hours / 3 Credits	Emergency Department Equipment - I
		III Semester	
		90 Hours / 3 Credits	Patient Assessment Medical
		90 Hours / 3 Credits	Introduction to Emergency Service - II
		IV Semester	
		90 Hours / 3 Credits	Emergency Department Equipment - II
		90 Hours / 3 Credits	Medical Emergencies - I
		90 Hours / 3 Credits	Patient Assessment – Trauma
		V Semester	
		90 Hours / 3 Credits	Trauma – I
		90 Hours / 3 Credits	Emergency Obstetrics & Neonatal Care
		90 Hours / 3 Credits	Pediatric, Geriatric & Psychiatric Emergencies
		VI Semester	
		90 Hours / 3 Credits	Medical Emergencies - II

	Broad category of course	Hours/Credits	Course (Title + Course Code)
		90 Hours / 3 Credits	Disaster Management
		90 Hours / 3 Credits	Trauma - II
c)	Clinical (SEC)*	-	-
d)	Simulation-based (SEC)*	-	-
2.	**Curriculum Enrichment Courses**		
a)	Field Visit	-	-
b)	Community Posting	-	-
c)	Industry / Clinical Internship	**VII Semester**	
		42 Hours/week / 20 Credits	Internship I
		VIII Semester	
		42 Hours/week / 20 Credits	Internship II
d)	Research Project	-	-
3.	**Electives**		
a)	Discipline-Specific Electives	-	-
b)	Interdisciplinary Courses	45 Hours / 3 Credits per year	Coursera/Swayam/NSS/Red cross
c)	Ability Enhancement Courses • *Soft skills development* • *Language and communication skill development*	**I Semester**	
		45 Hours / 3 Credits	English & Communication - I
		II Semester	
		45 Hours / 3 Credits	English & Communication - II

	Broad category of course	Hours/Credits	Course (Title + Course Code)
	• *Analytical skill development* • *Personality and professional development* • *Employability skill development*	30 Hours / 2 Credits	Kannada
d)	Value Added Courses	**I Semester**	
		30 Hours / 2 Credits	Constitution of India
		III Semester	
		30 Hours / 2 Credits	Human Rights and Gender Equity
		IV Semester	
		30 Hours / 2 Credits	Environmental Studies
		V Semester	
		30 Hours / 2 Credits	Medical Ethics
		VI Semester	
		30 Hours / 2 Credits	Biostatistics
	Total	**190 Credits**	

8. Attendance

- 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.
- There shall be no provision for condonation of shortage of attendance.

- The HOD/Programme 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.

9. Teaching-Learning Methods Course wise:

Teaching - Learning method	**Courses**
Experiential learning	Emergency Department Equipment – I Introduction to Emergency Services – II Emergency Department Equipment – I Patient Assessment – Medical Patient Assessment – Trauma Trauma – I Emergency Obstetrics and Neonatal Care Medical Emergencies – II Trauma - II
Integrated/Inter-disciplinary learning	Introduction to Emergency Services – I Medical Emergencies - I Medical Emergencies – II Emergency Obstetrics and Neonatal Care Pediatric, Geriatric and Psychiatric Emergencies
Participatory learning	Introduction to Emergency Services – I Emergency Department Equipment – I Disaster Management
Problem-solving methodologies	Introduction to Emergency Services – II Patient Assessment – Medical Patient Assessment – Trauma Medical Emergencies – I Trauma – I Emergency Obstetrics and Neonatal Care Medical Emergencies - II

Teaching - Learning method	Courses
Self-directed learning	Introduction to Emergency Services – I Emergency Department Equipment – I Disaster Management
Patient-centric and Evidence-based learning	Introduction to Emergency Services – II Patient Assessment – Medical Patient Assessment – Trauma Medical Emergencies - I Emergency Obstetrics and Neonatal Care Pediatric, Geriatric and Psychiatric Emergencies
The Humanities	Human Rights and Gender Equity Disaster Management
Project-based learning	Emergency Department Equipment – I Emergency Department Equipment – II Disaster Management
Role-play	Patient Assessment – Medical Patient Assessment – Trauma Trauma – I Trauma - II
Team-work	Introduction to Emergency Services – II Patient Assessment – Trauma Trauma – I Emergency Obstetrics and Neonatal Care Medical Emergencies – I Disaster Management
Reflective writing	Introduction to Emergency Services – I Introduction to Emergency Services – II Patient Assessment - Medical Disaster Management
Any other (Simulation-Based Learning)	Introduction to Emergency Services Patient Assessment – Trauma Trauma – I

Teaching - Learning method	Courses
	Trauma – II

10.Scheme of Examination

Evaluation of a course shall be done based on continuous internal assessment (CIA) mode followed by Semester End University Examination (SEE) for each core, SEC, AEC & VAC. The evaluation of Multidisciplinary elective offered by Yenepoya (Deemed to be) University shall be done based on formative assessment.

The components of CIA (Continuous Internal Assessment) may include sessional tests, Seminar, Assignment/ Social involvement and other activities as determined by the respective speciality.

There shall be examinations at the end of each semester ordinarily during February/March for odd semesters and during August/September for even semesters.

The SEE duration shall be 60 minutes for 25 marks paper and 120 minutes for 50 marks paper.

The various Formative assessment method include Assignments, reports, quizzes…

10.1 Examination Structure

The examination structure shall vary dep ending on the course, however, broadly divided as follows:

Examination / Assessment	Core / SEC	AEC (English, Kannada) / VAC
Continuous Internal Assessment	50 Marks	25 Marks
Semester End Examination	50 Marks	25 Marks
Total	100 Marks	50 Marks

10.2 Multidisciplinary Elective:

Multidisciplinary elective will be assessed through continuous and comprehensive assessment throughout the Semester (50 Marks)

i. Evaluation and Certification of online courses:

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 certificate obtained shall be submitted to the college office which will be communicated to the office of the Controller of Examinations of Yenepoya (Deemed to be University).

The Yenepoya (Deemed to be) University will give the equivalent credit weightage to the students for the credits earned through online learning courses through MOOCS/Coursera as per the credit plan of the program.

ii. Credit Mobility of Online Courses:

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

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

The elective course offered by the Yenepoya (Deemed to be University) shall be restricted to a maximum of 3 credits.

A candidate shall compulsorily complete total 9 Credits of Multidisciplinary courses.

These courses shall be selected either from the Generic Electives offered by the Yenepoya (Deemed to be) university or from the SWAYAM/Coursera courses. A Candidate shall have freedom to choose the courses of once own choice and learn at

their own pace but, require to complete minimum 3 credits before second semester, 6 credits before fourth semester and 9 credits before 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.

10.3 Parameters for Continuous Internal Assessment (CIA)

Internal Assessment Components	Core / SEC	AEC (English, Kannada) / VAC
Internal Assessment tests	20	10
Assignment	10	05
Continuous and comprehensive assessment	20	10
Total Marks	**50**	**25**

Assessment Methods:

1	Quiz	6	Role Play
2	Group Discussion	7	Peer to Peer Assessment
3	Open Book Exam	8	Mind Mapping
4	Think-Pair-Share	9	Minute paper
5	Presentations	10	Case Study

10.4 Question Paper Pattern for Core course (Internal Assessment & Semester End Examination)

	MAXIMUM MARKS = 50				Duration
Type of question	**Number of questions**	**To be Answered**	**Marks for each question**	**Total**	120

LONG ESSAY TYPE	02	01	10	10	minutes
SHORT ESSAY TYPE	07	05	04	20	
SHORT ANSWERS	12	10	02	20	
			Total	**50**	

	MAXIMUM MARKS = 50				**Duration**
PART A					
Type of question	**Number of questions**	**To be Answered**	**Marks for each question**	**Total**	120 Minutes
LONG ESSAY TYPE	02	01	10	10	
SHORT ESSAY TYPE	02	01	05	05	
SHORT ANSWERS	06	05	02	10	
PART B					
LONG ESSAY TYPE	02	01	10	10	
SHORT ESSAY TYPE	02	01	05	05	
SHORT ANSWERS	06	05	02	10	
			Total	**50**	

10.5 Question Paper Pattern for Ability Enhancement Compulsory (AEC) Course

	MAXIMUM MARKS = 25				**Duration**
Type of question	**Number of**	**To be**	**Marks for**	**Total**	

	questions	**Answered**	**each question**		60 minutes
ESSAY	05	03	05	15	
SHORT ANSWERS	07	05	02	10	
			Total	**25**	

10.6 Question Paper Pattern for Value Added (VAC) Course

	SUBJECTS HAVING MAXIMUM MARKS = 25				**Duration**
Type of question	**Number of questions**	**To be Answered**	**Marks for each question**	**Total**	60 minutes
ESSAY	05	03	05	15	
SHORT ANSWERS	07	05	02	10	
			Total	**25**	

10.7 Practical examination (SEC)

SI.NO	**Components**	**Marks**
1	Spotters	10
2	Case scenario/Stations	20
3	Viva Voce	20
Total Marks		50

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.

11. Eligibility to appear for University Examination

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.

There shall be no provision for condonation of shortage of attendance.

Evaluation of a course shall be done based on continuous internal assessment (CIA) mode followed by Semester End University Examination (SEE) for each core, SEC, AEC & VAC. The evaluation of Multidisciplinary elective offered by Yenepoya (Deemed to be) University shall be done based on formative assessment.

The components of CIA (Continuous Internal Assessment) may include sessional tests, Seminar, Assignment/ Social involvement and other activities as determined by the respective speciality.

The marks for CIA shall be 50% and SEE shall be 50%.

The minimum marks for CIA shall be 40% and SEE shall be 40% for a pass, but the minimum marks for pass per course shall be 50% CIA and SEE added together.

The HOD/Programme 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.

12. Criteria for Passing

The marks for CIA shall be 50% and SEE shall be 50%.

The minimum marks for CIA shall be 40% and SEE shall be 40% for a pass, but the minimum marks for pass per course shall be 50% CIA and SEE added together.

A candidate shall be declared to have passed the UG programme if he/she secures at least CGPA of 5.0 (Course Alpha-Sign Grade P) in the aggregate of both Internal Continuous Assessment and Semester End Examination.

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.

13. Grading and Classifications

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.

b. Letter Grades and Grade Points:

i. 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.

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

iii.

Letter Grade	Marks	Grade Point
O (Outstanding)	90-100	10
A+ (Excellent)	80-89	9
A (Very Good)	70-79	8
B+ (Good)	60-69	7
B(Above Average)	55-59	6
P (Pass)	50-55	5
F (Fail)/ RA (Reappear)	Below 50	0
Ab (Absent)		0

*The Marks with 0.5 shall be rounded up to the next whole number.

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

c. 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:

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

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:

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

d. 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:

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

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

14. Any other Information (Progression Criteria, Re-entry after break of the study, Evaluation of Answer Scripts, Internship)

14.1 Progression 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, AEC, SEC & VAC 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, AEC, SEC & VAC of first to fourth semester should be completed to be eligible for sixth semester End Semester Examination.

- Candidate should clear all Courses (Core, AEC, SEC, VAC & ME) 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 award/medal from the University.

14.2 **Re-Entry after Break of the study:**

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

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

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

14.3 **Evaluation of Answer Scripts**

a. 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.

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

14.4 **Internship**

A candidate has to mandatorily complete 1 year (2 semesters) of internship. The total credit per semester is 20 and for two semesters it is 40.

- **Eligibility:** A candidate should have passed in all the courses (Core, AEC,

VAC and Multidisciplinary Electives) amounting to 131 number of credits before entering in to internship.

- **Internship guidelines:** Each semester of Internship shall be minimum of 20 credits. The credits are calculated based on 1 credit = 3 to 5 hours of practical training. There shall be an exit exam at the end of the each semester at the college level.

- **Components of Exit Exam**

Sl. No.	**Components**	**Marks**
1	Spotters	30
2	Case scenario/Stations	30
3	Viva Voice	40
Total Marks		100

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 an Optometrist.

- Viva- Voce examination shall aim at assessing, i.e., depth of knowledge, logical reasoning, confidence &oral communication skills.

- OSCE/OSPE- shall have minimum of 3 stations.

SEMESTER I

HUMAN ANATOMY& PHYSIOLOGY I

Course: Core **Course Code:**

Credits: 04 **Number of hours: 60**

PART A- HUMAN ANATOMY

- **Course Outcomes:**

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

  CO1: To identify and locate each of the body systems to apply anatomical knowledge to perform minor technical procedural skills.

  CO2: To know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.

  CO3: To know the anatomical basis of disease and injury

  CO4: To discuss the interrelationship of systems in maintaining homeostasis.

  CO5: To describe the structure of each body system

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit I	4hrs	Introduction: Human body as a whole 1.1 Definition of anatomy and its divisions 1.2Terms of location, positions, and planes 1.3 Cell and its organelles. 1.4Epithelium: definition, classification, describe with examples, function. 1.5 Glands: classification, describe serous & mucous glands with examples.	√			10%	SE & SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
		1.6 Basic tissues: classification with examples 1.7Demonstration: Histology of types of epithelium. Histology of serous, mucous & mixed salivary gland.					
Unit II	5hrs	Locomotion and support 2.1Bone: 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. 2.2 Joints: classification of joints with examples, synovial joint (in detail for radiology). 2.3Muscular system: classification of muscular tissue & histology, names of muscles of the body. 2.4 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.	√			15%	LE, SE, SA
Unit	5hrs	Cardiovascular system	√			25%	LE, SE,

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
III		3.1Heart: size, location, chambers, exterior & interior, blood supply of heart 3.2 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. 3.3 Lymphatic system: cisterna chyli& thoracic duct, histology of lymphatic tissues, names of regional lymphatics, axillary and inguinal lymph nodes in brief. 3.4Demonstration 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.					SA
Unit IV	10hrs	Gastro-intestinal system 4.1 Parts of GIT, oral cavity, lip, tongue, dentition, pharynx,	√			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
		oesophagus, stomach, small and large intestine,liver,gall bladder, pancreas. 4.2 Tonsil, salivary glands extrahepatic biliary apparatus,Waldeyer's ring 4.3Demonstration of parts of gastro intestinal system. Normal radiographs of gastro intestinal system. Histology of gastro intestinal system.					
Unit V	4hrs	Respiratory system 5.1 Parts of RS, nose, nasal cavity, larynx, trachea, lungs, broncho-pulmonary segments, histology of trachea, lung and pleura, names of paranasal air sinuses. 5.2 Demonstration of parts of respiratory System Normal radiographs of chest. -Histology of lung and trachea.	√			15%	LE, SE, SA
Unit VI	2hrs	Embryology 6.1Spermatogenesis & oogenesis. Ovulation, fertilization. Fetal circulation. Placenta, Demonstration of models.		√		5%	SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended books:**

1. Priya Ranganath, Leelavathy N,Basics in Human Anatomy for BSc Paramedical Courses,Revised and updated edition, The Health
2. Chaurasia BD. Human anatomy. CBS Publisher; 2004.
3. Vishram Singh, Textbook of Anatomy, Revised and updated edition, Elsevier
4. Waugh A, Grant A. , Ross &Wilson Anatomy and physiology in health and illness E-book. Elsevier Health Sciences; 2014 Jun 25.
5. Inderbir S. Textbook of human histology with color atlas. New Delhi: Jaypee BrothersMedical Publishers. 2006.

PART B- PHYSIOLOGY

- **Course Outcomes:**

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

CO1: To demonstrate the understanding of physiological structure of Renal system, endocrine system, Nervous system and special senses.

CO2: To broadly identify the clinical abnormalities of organs and its clinical physiological implications

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit I	2hrs	**General Physiology** 1.1 Introduction to physiology 1.2 Homeostasis: Definition, Positive feedback, negative feedback. PH 1.3 Body Fluid Compartments	√	√		15%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit II	5hrs	**Muscle Nerve physiology** 2.1.1Introduction, Classification and structure of muscle, sarcomere 2.2Neuromuscular junction, Transmission across neuromuscular junction. 2.3 Excitation contraction coupling. Mechanism of muscle contraction, rigor mortis.	√	√		20%	LE, SE, SA
Unit III	7hrs	**Blood** 3.1 Introduction: composition and function of blood. 3.2 Blood Cells: types, Normal Count 3.3 Red blood cells: function. Erythropoiesis: Definition, Stages, Factors affecting 3.4 Hemoglobin: Function, concentration Physiological variation of RBC Count and Hb 3.5 White blood cells: different types, functions, normal count, differential count 3.6 Platelets: origin, normal count, functions. 3.7 Haemostasis: definition, steps,	√	√		25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		clotting factors, mechanism of clotting, disorders of clotting 3.8 Blood groups: ABO system, Rh system: Rh factor, Rh incompatibility. 3.9 Blood grouping & typing, cross matching. 3.10 Blood transfusion: indication, universal donor and recipient concept. Selection criteria of a blood donor, transfusion reactions. 3.11 Anaemias: definition, Symptoms and signs (brief). 3.12 Blood indices: colour index, MCH, MCV, MCHC (def and Normal Values). 3.13 ESR and PCV: normal values, definition, determination (methods). 3.14Plasma proteins: types and concentration, functions of albumin, globulin, fibrinogen, prothrombin. 3.15 Blood volume: normal value, determination of blood volume					
Unit IV	8hrs	**Cardiovascular system** 4.1 Heart: physiological anatomy,	√	√		20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		nerve supply. 4.2Properties of cardiac muscle PH 4.3Cardiac cycle: definition, systole, diastole, phases, JVP(brief) 4.4Cardiac output, stroke volume, EDV (only definitions). 4.5 Heart sounds, normal heart sounds, mechanism and features, areas of auscultation. 4.6 Blood pressure: definition, normal value, clinical measurement of blood pressure, hypotension, hypertension 4.7Heart rate: Physiological variations, regulation (brief), radial pulse 4.8Electrocardiogram (ECG): Definition, Normal ECG, Causes of ECG waves, Uses of ECG. 4.9Cardiac shock: Definition, Types (brief), Triple response.					
Unit V	6hrs	**Respiratory system** 5.1Introduction: Functions of respiratory system, physiological anatomy of respiratory system,	√	√		20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		respiratory tract 5.2Respiratory organs: lungs, alveoli, respiratory membrane 5.3Mechanism of breathing: Inspiration and Expiration, muscles involved, Mechanism. 5.4Surfactant: Composition, Function, 5.5Transport of oxygen: forms of transport, Oxygen Hemoglobin Curve. 5.6Lung volumes and capacities: Spirogram, Definitions and normal Volumes. 5.7Regulation of respiration: Nervous and chemical regulation, respiratory centre, Herring Breur reflexes. 5.8Hypoxia: Def, Classification, Description (in brief). 5.9 Cyanosis, Asphyxia, Dyspnea, Dysbarism, Artificial Respiration, Apnoea.(Definition Only)					

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **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 CentralBook.

PATHOLOGY &MICROBIOLOGY-I

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

PART A- PATHOLOGY

- **Course Outcome:**

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

CO1: Explain the blood cells structure, functions & its formation.

CO2: Enumerate the methods of estimating cell counts.

CO3: Demonstrate blood collection by various methods

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
Unit I	2 hrs	Introduction to Pathology		√		05%	SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
Unit II	12 hrs	Hematology 2.1. Normal constituents of Blood, their structure and functions. 2.2. Collection of Blood samples. 2.3. Various anticoagulants used in hematology. 2.4. Hemoglobin estimation, different methods and normal values. 2.5. RBC count.	√			35%	LE,SE,SA
		2.6. WBC count. 2.7. Platelet count.					
Unit III	10 hrs	Blood Bank 3.1. Introduction to blood banking. 3.2. Blood group system: ABO & Rh system. 3.3. Methods of blood grouping: Forward & Reverse. 3.4. Donor selection criteria. 3.5. Collection and processing of blood for transfusion.	√			30%	LE,SE, SA
Unit IV	6 hrs	Clinical Pathology 4.1. Collection, transport, preservation and processing of various clinical specimens. □ Urine. □ CSF. □ Stool. □ Sputum.	√			30%	LE,SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
		Body fluids. 4.2. Urine examination- collection and preservation, Physical, chemical and microscopicexamination for abnormal constituents.					

❖ **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

➢ **Recommended Books**

1) Makroo RN. Blood Transfusion Reactions. In: Compendium of transfusion medicine.2nd ed. 2009;332-345
2) Dr.Ramdas Nayak ,text book of Hematology and Clinical pathogy.
3) Godkar PB, Godkar DP. Textbook of medical laboratory technology. Bhalani; 2003.

PART B- MICROBIOLOGY

➢ **Course Outcome:**

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

CO1: The general criteria for microbial classification, Types of culture medias and methods.

CO2: Identify key concepts of immunology.

CO3: Implement the common sterilization and disinfection methods.

CO4: Outline and practice general biomedical waste management.

➢ **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
Unit 1	**5Hrs**	**Introduction** 1.1 Introduction & history of Microbiology 1.2 Classifications of microorganisms & structure of bacteria 1.3 Microscopy and types of microscope	✓			**10%**	**LE, SE**
Unit 2	**3 Hrs**	**Growth & Nutrition** 2.1 Nutrition, growth and multiplication of bacteria, Bacterial Growth Curve 2.2 Culture medias 2.3 Culture methods	✓			**10%**	**LE, SE,SA**
Unit 3	**4 Hrs**	**Sterilization & Disinfection** 3.1 Classification of Sterilization and Disinfection 3.2Sterilization:Different methods of sterilization,Principles and use of equipment's of	✓			**30%**	**LE, SE**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
		sterilization- Hot Air oven &Autoclave in detail 3.3 Disinfection: Commonly used chemical disinfectants and their uses					
Unit 4	**9 Hrs**	**Immunology** 4.1 Immunity- Classification and types 4.2 Antigen 4.3 Antibody 4.4 Antigen antibody reactions 4.5 Hypersensitivity reactions 4.6 Immunization schedule	✓			**30%**	**LE, SE, SA**
Unit 5	**4 Hrs**	**Infection** 5.1 Infection- Definition, types, sources and mode of transmission 5.2 Hospital acquired infections 5.3 Types of infectious	✓			10%	**SE,SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
		diseases- outbreak, endemic, epidemic, pandemic					
Unit 6		**Applied Microbiology** 6.1 Biomedical Waste Management: Principles & Practices 6.2 Standard precautions 6.3 Hand hygiene technique and body fluids spill management 6.4 Needle stick injury management-1	✓			**10%**	**SE,SA**

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer
- **Recommended Books:**

1. Baveja CP. Textbook of microbiology. Arya Publications; 2005.
2. Ananthanarayan R. Ananthanarayan and Paniker's textbook of microbiology. Orient Blackswan; 2006.
3. Owen JA, Punt J, Stanford SA, Jones PP, Kuby J.Kuby immunology. Seventh edition, International edition. Basingstoke: Macmillan Higher Education; 2013

INTRODUCTION TO EMERGENCY SERVICES – I

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

- **Course Outcomes:**

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

  CO1: 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.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
Unit I	15hrs	Introduction to structure and organization of a hospital and its departments 1.1 Definition &Overview of Emergency Medical Services System, Regulation and Policy Resource management, human resources and training. 1.2 Functioning of an ideal emergency medicine	✓			25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
		1.3 department 1.4 Multiple Casualty Incident 1.5 Concept of triage 1.6 Types of triage 1.5.1 Simple Triage and Rapid Treatment 1.5.2 Simple triage and evacuation 1.5.3 Advanced triage 1.5.4 Disaster First Aid (DFA) andadvanced triage.					
Unit II	15hrs	Ambulance services (A) 2.1 Preparation of an ambulance Medical Equipment's Preparation - Non-Medical Preparation 2.2 Personal safety equipment as per local, state, and central standards	✓			25%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
		2.3 Fuel Status 2.4 Pre-planned routes or comprehensive street maps - Personnel 2.5 Daily inspections -Inspection of vehicle systems -Equipment 2.6 Utilization of safety precautions and seat belts					LE, SE, SA
Unit III	15hrs	Ambulance services (B) 3.1 Responding to a call 3.2 Emergency vehicle operation. 3.3 Position and Transport of patient. 3.3.1Patient position, prone, lateral, dorsal, dorsal recumbent, Fowler's position, comfort measures, bed making, rest and sleep.	✓			25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
		3.3.2 Lifting and transporting patients: lifting patients up in the bed transferring from bed to wheel chair, transferring from bed to stretcher. 3.4 Loading patients to an ambulance 3.4.1 Wheeled ambulance stretcher 3.4.2 Portable ambulance stretcher 3.4.3Scoop stretcher 3.4.4Long spine board 3.5 Transferring patients 3.6 The phases of an ambulance call					
Unit IV	10hrs	Assessment of Mechanism of injury/nature of illness Gaining Access 4.1 Fundamentals of Extrication 4.2 Rescue EMS	✓			15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
		4.3 Equipment -Personal safety - Patient safety					
Unit V	5hrs	Communication 5.1 Communication with doctors, colleagues and other staffs. 5.2 Non-verbal communication, Inter-personnel relationships. 5.3 Patient contact techniques, communication with patients and their relatives.	✓			10%	LE, SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

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 Churchil
5. Fundamentals of Respiratory Care-Egan's-Craigl.Scanlon

INTRODUCTION TO EMERGENCY SERVICES – I SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

- **Course Outcomes:**

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

  CO1: 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.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90 hrs	1.1 Pre-Preparataion of ambulance. 1.2 Problems based on triage 1.3 Basic life support skills	✓			100%

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 Churchil
5. Fundamentals of Respiratory Care-Egan's-Craigl.Scanlon

YENEPOYA
(DEEMED TO BE UNIVERSITY)

ENGLISH PROFICIENCY: A PATH TO EFFECTIVE COMMUNICATION

Course: AEC **Course Code:**

Credits: 3 **No of Hours: 45 Hours**

- **Course Outcomes:**

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

CO1: Acquire the LSRW (Listening, Speaking, Reading, and Writing) skills. Through Cambridge Interchange Fifth Edition, students will develop real world communication skills- enhancing fluency in speaking, listening, reading and writing – wile mastering grammar, expanding vocabulary and improving pronunciation with supportive digital tools.

CO2: Learn to appreciate Literature.

CO3: Be aware of social responsibilities.

CO4 : Enhance the analytical skill

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit I	10hrs	**UNIT 1: CAMBRIDGE: INTERCHANGE FIFTH EDITION** 1.1 Good Memories 1.2 Life in the City 1.3 Making Changes 1.4 Have you ever tried it? 1.5 Hit the Road. 1.6 Sure. I will do it. 1.7 What do you use this for? 1.8 Time to Celebrate.	√			23%	SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit II	8hrs	**UNIT- II: PHONETICS** 2.1 Brief Introduction 2.2 Classification of Vowels, Diphthongs and Consonants 2.3 Pronouncing the words phonemically and transcribing them into Phonetics 2.4 IPA`	√			18%	SA
Unit III	11hrs	**UNIT – III: Grammar and Written Communication** 3.1 Parts of Speech 3.2 Verb Tenses 3.3 Articles 3.4 Capitalization and Punctuation 3.5 E-mail Drafts 3.6 Formal Letters 3.7 Essay Writing	√			24%	SA
Unit IV	4hrs	**UNIT – IV : Prose** 4.1 Steev Jobs : Commencement Address 4.2 Mother Teresa's Award Winning Speech	√			9%	LE, SE
Unit V	6hrs	**UNIT – V: Poetry** 5.1 The Road Not Taken : Robert	√			13%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
		Frost 5.2 The Man with the Wooden Leg : Catherine Mansfield 5.3 Our Casuarina Tree : Toru Dutt					LE, SE
Unit VI	6hrs	**UNIT – VI : Short Stories** 6.1Gift of the Magi : O' Henry 6.2Kabulivala : Raindranath Tagore 6.3The Blue Umbrella : Ruskin Bond		√		13%	LE, SE

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended Books:**

1. Cambridge: Interchange Fifth Edition
2. Contemporary English Grammar Structures & Composition by David Green
3. English Grammar and Composition: Wren & Martin
4. English Grammar in Use by Raymond Murphy

Constitution of India

Course: VAC **Course Code:**

Credits: 2 **No of Hours: 30 Hours**

- **Course Outcome:**

At the end of this course, students will gain knowledge on

CO1: This course is to keep the students abreast with the knowledge of the Constitution of India.
CO2: To make the students understand the importance of human rights as citizens of India.

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit I	5hrs	**Indian Constitution** • Meaning and Importance of Constitution • The Constituent Assembly • The Preamble • Salient Features of Constitution	√			**10%**	SE, SA
Unit II	3hrs	**Fundamental Rights and Directive Principles** • Meaning and Differences between Fundamental	√			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
		Rights and Directive Principles • Fundamental Rights • Rights Information Act Meaning ,importance of RTI 2005					
Unit III	4hrs	**Union Government** • The President of India-Election ,Powers and Position • Prime Minister and Council of Ministers • Parliament – Loksabha ,Rajyasabha-Organisations and Powers	√			15%	LE, SE, SA
Unit IV	4hrs	**State Government** • The Governor • Chief Minister and Council of Ministers • State Legislature Vidhanasabha ,vidhanaParisha	√			10%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
		d-Organisations and Powers					SE, SA
Unit V	2hrs	**Federalism in India** • Meaning Federal and Unitary Features	√			10%	SE, SA
Unit VI	2hrs	**The Judiciary** • The Supreme Court- Organization ,Jurisdiction and Role • The High Court- Organization ,Jurisdiction and Role	√			10%	SE, SA
Unit VII	2hrs	**Electoral Process In India** • Election Commission – Organization ,Functions	√			10%	SE, SA
Unit VIII	2hrs	**Local Governments** • Rural and Urban- Organization ,Powers and Functions	√			5%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit IX	3hrs	**Human Rights** • Human Rights- Meaning • Universal Declaration of Human Rights • Remedies against Violation of Human Rights in India	√			5%	LE, SE, SA
Unit X	3hrs	**Special Constitutional Provisions** • 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	√			5%	SE, SA

❖ **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

➢ **Recommended Books**

- Basu, D.D , Constitution of India, New Delhi Himalaya Publication ; 2001
- Dinesh Shelton, David P Stuart, International Human Rights in Nutshell. Thomas Burgenthel, West Nutshell Publisher; London; 2005.
- ParvathyAppaiah, Constitution of India, Mangalore DivyaDeepa Publication; 2005
- ParvathyAppaiah, Human Rights. DivyaDeepa Publication Mangalore; 2016
- RajRam. M, Constitution of India Himalaya Publication, New Delhi; 1999

SEMESTER II

HUMAN ANATOMY& PHYSIOLOGY II

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

PART A- HUMAN NANATOMY

- **Course Outcomes:**

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

CO1. To identify and locate each of the body systems to apply anatomical knowledge to perform minor technical procedural skills.

CO2. To know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.

CO3. To know the anatomical basis of disease and injury

CO4. To discuss the interrelationship of systems in maintaining homeostasis.

CO5. To describe the structure of each body system

- **Course Content:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit I	5hrs	Urinary system 1.1 Kidney, ureter, urinary bladder, male and female urethra. 1.2 Demonstration of parts of urinary system. Histology of kidney, ureter, urinary bladder.	√			15%	LE, SE, SA
Unit II	10hrs	Reproductive system 2.1Parts of male reproductive system, testis, vas deferens, epididymis, prostate 2.2 Parts of female reproductive system, uterus, fallopian tubes, ovary 2.3 Mammary gland: 2.4 Demonstration of section of male and	√			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		female pelvis with organs in situ. Histology of male and female reproductive organs.					
Unit III	3hrs	Endocrine glands 3.1Endocrine glands: pituitary gland, thyroid gland, parathyroid gland, suprarenal gland 3.2 Demonstration of the glands. Histology of pituitary, thyroid, parathyroid, suprarenal glands.		√		15%	SE, SA
Unit IV	10hrs	Nervous system 4.1 Neuron, classification of nervous system, cerebrum,cerebellum,midbrain,pons, medullaoblongata,spinalcordwithspinalnerve, meninges, ventricles & cerebrospinal fluid, names of basal nuclei, blood supply of brain, cranial nerves. Sympathetic trunk& names of parasympathetic ganglia 4.2 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.	√			25%	LE, SE, SA
Unit V	2hrs	Sensory organs 5.1 Skin: histology, appendages of skin. 5.2 Eye: parts of eye & lacrimal apparatus. Extra-ocular muscles & nerve supply. 5.3 Parts of ear: external, middle, and inner ear and contents. 5.4 Histology of thin and thick skin. Demonstration and histology of eyeball.		√		15%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		Histology of cornea & retina.					

❖ **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

➢ **Recommended Books**

1. Chaurasia BD. BD Chaurasia's Human Anatomy. CBS Publishers & Distributors PVt Ltd.; 2010.
2. Sampath Madhyastha, Manipal Manual of Anatomy for Allied Health Sciences,New Delhi: CBS publishers and distributors.
3. Waugh A, Grant A. Ross & Wilson Anatomy and physiology in health and illness E-book. Elsevier Health Sciences; 2014 Jun 25.
4. Dilly PN. Essentials of Human Embryology. Postgraduate Medical Journal. 1984 Jun;60(704):447.
5. Inderbir S. Textbook of human histology with color atlas. New Delhi: Jaypee Brothers Medical Publishers. 2006.
6. Priya Ranganath, Leelavathy N, Basics in Human Anatomy for BSc Paramedical Courses, Revised and updated edition, The Health

PART B- PHYSIOLOGY

➢ **Course Outcomes:**

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

CO1: To demonstrate the understanding of physiological structure of Renal system, endocrine system, Nervous system and special senses.

CO2: To broadly identify the clinical abnormalities of organs and its clinical physiological implications

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit I	5hrs	**Digestive System** 1.1 Introduction 1.2Physiological anatomy of gastro intestinal tract (All Structures in brief), functions of digestive system 1.3Functions of Saliva 14Deglutition: definition, stages 1.5Stomach: functions 1.6Gastric secretion: composition, function, Phases of secretion 1.7Pancreas: Functions (exocrine), pancreatic juice: composition and regulation. Secretin and CCK-PZ 1.8Liver: Functions, Bile secretion, composition, function of bile; 1.9Bilirubin metabolism, types of bilirubin, Vandenberg reaction, Jaundice: types,	√			15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		significance. 1.10Gall bladder: Functions. 1.11Small intestine: functions, digestion and absorption, movements. (brief) 1.12Large intestine: functions, defecation reflex					
Unit II	5 hrs	**Renal system** 2.1 Introduction: Functions of kidneys, composition of urine, nephron, cortical and juxtamedullary nephrons (comparison), 2.2 Juxta Glomerular Apparatus: structure and function. 2.3 Mechanism of urine formation 2.4 GFR: Definition, Normal Values, factors effecting GFR, Measurement (Creatine, Inulin Clearance). Tubular reabsorption, TMG, Tubular secretion	√	√		15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		(brief). 2.5Mechanism of urine concentration: Counter-current mechanisms, Role of ADH 2.6 Micturition, innervation of bladder, cystometrogram.					
Unit III	2 hrs	**Skin and Body temperature** 3.1Structure and function of Skin 3.2 Body Temperature: physiological variation. 3.3 Regulatory mechanisms: Mechanisms Activated by Heat/Cold 3.4 Role of hypothalamus, and fever.	√	√		10%	SE
Unit IV	5 hrs	**Endocrine System** 4.1 Introduction: Definition, classification of endocrine glands & their hormones. 4.2 Hypothalamo-pitiutary Axis		√		15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		4.3 Pituitary hormones: anterior and posterior pituitary hormones, Functions of Growth hormone, 4.4 Thyroid gland: Thyroid Hormones: physiological function, regulation of secretion, disorders: hypo and hyper secretion of hormone. 4.5Adrenal cortex: functions of Cortisol and Aldosterone 4.6 Adrenal medulla: functions of Adrenalline and Noradrenalline . 4.7Pancreas (Endocrine): Hormones of pancreas. 4.8Insulin: functions, regulation of blood glucose level, Diabetes mellitus 4.9 Regulation of Calcium Metabolism: Hormones involved, actions of PTH, Calcitonin, Vit D3					

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit V	5 hrs	**Reproductive system** 5.1 Introduction, Function of reproductive system, Changes during puberty. 5.2 Male reproductive system: functions of testes Spermatogenesis: Definition, site, stages, factors influencing, Endocrine functions of testes. 5.3 Androgens: testosterone functions. 5.4 Female reproductive system 5.5Menstrual cycle: Definition, changes, ovulation 5.6 Functions of progestorene and estrogen 5.7 Physiological changes during pregnancy, Lactation(brief), milk ejection reflex	√	√		15%	LE, SE, SA
Unit	3	**Special senses**	√	√		15%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
VI	hrs	6.1 Vision: Functions of different parts(brief) 6.2 Optic Pathway, Dark Adaptation, Colour vision. 6.3Hearing: Function of Middle Ear, Functions of inner ear, mechanism of hearing (brief). 6.4Chemical Senses: Taste: types, receptor, Smell: physiology, receptors.					
Unit VII	7 hrs	**Nervous system** 7.1 Introduction: Parts of CNS and PNS, Functions of nervous system 7.2Neuron: definition ,structure 7.3 Nerve Fibre: classification, conduction of impulses continuous and saltatory. 7.4Synapse: Definition, structure, types, properties (brief). Receptors: definition, classification, properties (brief). 7.5Reflex: Definition, Reflex Arc, Examples. 7.6Spinal cord nerve	√	√		15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		tracts: Diagram and Functions: Lateral Spino Thalamic Tract, Dorsal Column, Pyramidal Tract. 7.7Spinal cord nerve tracts: Diagram and Functions: Lateral Spino Thalamic Tract, Dorsal Column, Pyramidal Tract. 7.8Cerebro Spinal Fluid (CSF): site of formation, circulation (brief), functions. 7.9Autonomic Nervous System: Sympathetic and parasympathetic distribution and functions (brief).					

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended Books**

1. Guyton (Arthur): Text Book of Physiology. Latest Ed. Prism publishers.
2. Ganong William F: Review of Medical Physiology. Latest Ed. Tata
    a. McGraw Hill

Chatterjee CC: Human Physiology Latest Ed. Vol-1, Medical Allied Agency. Choudhary Sujith K: Concise Medical Physiology Latest Ed. New Central Book.

PATHOLOGY & MICROBIOLOGY-II

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

PART A- PATHOLOGY

➢ **Course objectives:**

CO1: To study fundamental aspects of different groups of microorganisms and their importance.

CO2: To compute medically important infective organisms and their diagnosis.

CO3: To enumerate the common infections of bacteria, virus, parasite and fungi.

CO4: To understand fundamental analytical principles and process used in histopathology

➢ **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
Unit I	12 hrs	Histopathology 1.1 Introduction to histopathology 1.2. Grossing technique 1.3. Tissue processing (Fixation, Dehydration, Clearing & Impregnation)	√			30%	LE,SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
		1.4. Embedding technique 1.5. Section cutting 1.6. H&E staining					
Unit II	6 hrs	Cytology 2.1. Introduction to cytology. 2.2 FNAC 2.3. PAP stain.	√			25%	SE, SA
Unit III	12 hrs	General Pathology 3.1. Cell injury: Agents causing cell injury, cellular adaptations (hypertrophy, atrophy, hyperplasia, metaplasia) reversible and irreversible injury. 3.2. Inflammation: Cardinal signs of inflammation, acute and chronic inflammation. Laboratory tests in inflammation. 3.3. Hemodynamic □ Edema & shock	√			45%	LE,SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
		Thromboembolism & Infarction. 3.4. Neoplasia: Definition of neoplasm, differences between benign and malignant tumors, Carcinogenesis. 3.5. Genetic disorders: Introduction to genetic disease and classification of geneticdisorder.					

- **Recommended Books:**

1. Histopathology techniques and its management –by Dr.Ramdas Nayak
2. RamnikSood ,Text book of Medical Laboratory Technology 6th Edition, Vol 1 & 2

PART B- MICROBIOLOGY

- **Course Outcomes:**

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

CO1: To outline fundamentals aspects of microbiology including origin, evolution of microorganisms, different groups of microorganisms and their importance, microscopy principles and applications, morphology, and structure.

CO2: To explain microbiological media, isolation, cultivation and enumeration methods of microorganisms, microbial growth characteristics, maintenance, and preservation of microbial cultures

CO3: To develop knowledge on basic immunological concepts.

CO4: To develop knowledge on basic immunological concepts.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of questions
Unit I	**11Hrs**	**Systematic Bacteriology** **1.1** Overview of common bacterial infections & bacterial virulence factors and Antimicrobial sensitivity test **1.2** Morphology, pathogenesis and laboratory diagnosis of medically important bacteria (Staphylococcus aureus & MRSA, Pneumococcus. Enterobacteriaceae-Salmonella (Enteric fever), E. coli, Vibrio cholerae, Mycobacterium tuberculosis **1.1** Biochemical reactions and identification of bacteria.	✓			**30%**	**LE, SE,SA**
Unit II	**8Hrs**	**Virology** 2.1 Nutrition, growth and multiplication of bacteria, Bacterial Growth Curve 2.2 Morphology, pathogenesis	✓			**30%**	**LE, SE,SA**

		and laboratory diagnosis of (HIV-1, Hepatitis viruses- Hepatitis B & Hepatitis C virus, Rabies-1, Arbo viruses- Dengue virus					
Unit III	**4 Hrs**	**Mycology** 3.1 Introduction to Mycology-1 3.2 Morphology, pathogenesis and laboratory diagnosis of (Dermatophytes, Candida, Cryptococcus)	✓			**20%**	**LE, SE,SA**
Unit IV	**7Hrs**	**Parasitology** 4.1 Introduction to Parasitology. 4.2 Morphology, Life cycle, pathogenesis and laboratory diagnosis of (E.histolytica, Plasmodium, Ascaris, T.solium, T.saginata, Ancylostoma)	✓			**20%**	**LE, SE,SA**

❖ **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books:

1. Baveja CP. Textbook of microbiology. Arya Publications; 2005.
2. Ananthanarayan R. Ananthanarayan and Paniker's textbook of microbiology. Orient Blackswan; 2006.

YENEPOYA
(DEEMED TO BE UNIVERSITY)

BIOCHEMISTRY

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

- **Course Outcomes:**

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

CO1: Have knowledge and understanding of procedures of specimen collection, reagent preparation of specimens, performing biochemical tests, interpreting results, and managing biomedical waste effectively.

CO2: Understand the basic procedures in specimen collection, reagent preparation, and testing in a clinical laboratory

CO3: Demonstrate the knowledge of properties of biomolecules and their function.

CO4: Have knowledge of the importance of nutrition in health and diseases.

- **Course Content:**

Unit	Hrs	Content	Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit I	5hrs	**Introduction to Biochemistry and Clinical Laboratory** **1.1Specimencollection:**Preanalytical, variables, collection of blood, Urine, CSF, and other body fluids, anticoagulants and preservatives **1.2 Dilutions:** Dilution of solutions (Preparation of 0.1 N NaCl from 1 N NaCl), Preparation of percent solutions, Preparing working standard from stock standard, Specimen dilutions, Serial	✓ ✓			15%	LE,SA,SE

Unit	Hrs	Content	Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
		dilutions, and Reagent dilution **1.3Special investigations:** Normal values, methods, and interpretation of biochemical parameters. Preparation of patients for special investigations, and interfering substances **1.4Quality control:** Definition, types, IQAS and EQAS, Calculation of mean, standard deviation and percentage of coefficient variation **1.5Safety measures, Conventional and SI units** **1.6Bio Medical waste management**	 ✓ ✓	 ✓			
Unit II	10hrs	**2.1.1**Biomedical importance of carbohydrates. **2.2**Introduction, Definition, Functions, and Classification of Lipids. Definition and Classification of fatty acids, Essential fatty acids with examples.	✓ ✓ ✓			25%	LE, SE,

Unit	Hrs	Content	Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit III	5hrs	**Protein chemistry and Plasma Proteins** **3.1** Introduction, Definition, and Classification of amino acids with examples. **3.1.1** Peptides: definition & biologically important peptides with examples **3.1.2** Introduction, Definition, and Classification of Proteins with examples **3.1.3** Functions of amino acids and Proteins **3.2** Introduction, types, functions, and biological reference range of plasma proteins. **3.2.1** Immunoglobulins	✓ ✓ ✓ ✓ ✓ ✓			15%	LE, SE, SA
Unit IV	5hrs	**Enzymes** **4.1**Introduction, Definition, classification with suitable examples, Active site of enzyme, Factors influencing enzyme activity, **4.1.1**Definition of Cofactor, Coenzyme, And isoenzymes with examples.	✓ ✓			10%	LE,SE,SA
Unit V	10hrs	**Vitamins and Minerals** **5.1**Introduction, Definition,				20%	LE,SE

Unit	Hrs	Content	Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
		classification, Fat soluble and water-soluble vitamins: Sources, RDA, Biological functions and deficiency disorders. **5.2**Introduction, Definition and classification of macro and micro minerals with examples **5.2.1**Calcium, Phosphorous, iron, Sodium, Potassium: Sources, RDA, Reference ranges, Functions and Disorders of deficiency and excess	✓ ✓ ✓				
		Nutrition **6.1**Calorific values of carbohydrates, proteins, and fats **6.2**Nutritional importance of Carbohydrates, lipids, proteins, and Essential amino acids **6.3**SDA: Definition, values for majormacronutrients, Significance of SDA	✓ ✓ ✓				

Unit	Hrs	Content	Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit VI	10hrs	**6.4**Basal metabolic rate (BMR): Definition, Reference range of BMR in men and women, Factors affecting BMR **6.5**Dietary fibers: Definition, functions, importance and their daily requirements Balanced diet **6.6**Essential fatty acids: Definition, functions and deficiency manifestations **6.7**Define the classes of protein-energy malnutrition: marasmus and kwashiorkor.	✓ ✓ ✓ ✓			15%	LE, SA,SE

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended Books

1) Vasudevan DM, Sreekumari S, Vaidyanathan K. Textbook of Biochemistry for medical students. Jaypee Brothers Medical Publishers; 2019 Sep 30.
2) Satyanarayana U and U Chakrapani. 2013. Biochemistry (version 4th ed). 4th ed. New Delhi: Elsevier Health Sciences APAC.

EMERGENCY DEPARTMENT EQUIPMENT – I

Course: Core **Course code:**

AH01TCM2CC4

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

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

CO1: Student will learn the basic principle, description, types, usage, calibration and maintenance of emergency department equipment.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit I	15hrs	Basic principle, description, types, usage, calibration and maintenance of: 1.1 Laryngoscopes 1.2 Endo-tracheal tubes (ETT), Boogie 1.3 Ambu bag and mask	✓			25%	SE, SA
Unit II	15hrs	Basic principle, description, types, usage, calibration and maintenance of 2.1 Airway adjuncts, supra glottic	✓			25%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		airway devices including Laryngeal mask airway (LMA) 2.2 Types of oxygen masks, venture etc. 2.3 Oro pharyngeal and nasopharyngeal airways (OPA and NPA) 2.4 Head tilt chin lift / Jaw thrust					LE, SE, SA
Unit III	15hrs	Basic principle, description, types, usage, calibration and maintenance of 3.1 ICD tubes, bags, jars, instrument tray 3.2 Suction apparatus 3.3 Ambulance (Cervical) Collar, Philadelphia Collar	✓			25%	LE, SE, SA
Unit IV	15hrs	Patient Monitoring 4.1 Vital Parameter Documentation	✓			25%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		4.1.1 Measure of pulse 4.1.2 Temperature monitoring 4.1.3 Respiratory monitoring 4.2 Basic principle, description, types, usage, calibration and maintenance of: 4.2.1 Pulse oximeter 4.2.2 ECG Monitoring 4.2.3 NIBP Monitoring 4.2.4 Etco2 Monitoring					LE, SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

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 Churchil
5. Fundamentals of Respiratory Care- Egan's - Craig l.Scanlon

EMERGENCY DEPARTMENT EQUIPMENT – I SKILLS

Course: Core **Course code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

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

CO1: Student will learn the basic principle, description, types, usage, calibration and maintenance of emergency department equipment.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90hrs	1.1 Monitoring Vital Parameters 1.2 Observe and assess patients in the outpatient area and wards 1.3 Accompany the patient from the wards to the various departments for investigations	✓			100%

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 Churchil
5. Fundamentals of Respiratory Care- Egan's - Craig l.Scanlon

ENGLISH PROFICIENCY: A PATH TO EFFECTIVE COMMUNICATION

Course: AEC **Course Code:**

Credits: 3 **No of Hours: 45 Hours**

- **Course Outcomes:**

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

CO1: Acquire the LSRW (Listening, Speaking, Reading, and Writing) skills. Through Cambridge Interchange Fifth Edition, students will develop real world communication skills-enhancing fluency in speaking, listening, reading and writing – wile mastering grammar, expanding vocabulary and improving pronunciation with supportive digital tools.

CO2: Learn to appreciate Literature.

CO3: Be aware of social responsibilities.

CO4 : Enhance the analytical skill

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
Unit I	13hrs	**UNIT – I: CAMBRIDGE INTERCHANGES FIFTH EDITION** 1.1 Only Time Will Tell 1.2 I Like Working with People 1.3 It's Really Worth Seeing 1.4 It's a Long Story 1.5 That's Entertainment 1.6 Now I Get it 1.7 I wouldn't have done that 1.8 Making Excuses	√			29%	SA
Unit II	3hrs	**UNIT – II: Phonetics – IPA Transcription**	√			7%	SA
Unit	13hrs	**UNIT – III: Grammar and Written**	√			29%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types Of Questions
III		**Communication** 3.1 Reported Speech 3.2 Modals 3.3 Clauses 3.4 Gerunds 3.5 Active and Passive Voice 3.6 Synonyms and Antonyms 3.7 News Report Writing 3.8 Speech Writing 3.9 Dialogue Writing					SA
Unit IV	4hrs	**UNIT – IV: PROSE** 4.1 Chicago Address by Swami Vivekananda 4.2 I have a Dream : Martin Luther King	√			9%	LE, SE
Unit V	6hrs	**UNIT – V: Poetry** 5.1 Still I Rise : Maya Angelou 5.2 BThe Raven : Edgar Allen Poe 5.3 Break, Break, Break : Alfred Lord Tennyson	√			13%	LE, SE
Unit VI	6hrs	**UNIT – VI : Short Stories** 6.1 The Luncheon : William Somerset Maugham 6.2 The Power of Prayer : APJ Abdul Kalam 6.3 The Necklace : Guy De Maupassant		√		13%	LE, SE

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended Books:**

5. Cambridge: Interchange Fifth Edition
6. Contemporary English Grammar Structures & Composition by David Green
7. English Grammar and Composition: Wren & Martin

English Grammar in Use by Raymond Murphy

KANNADA

Course: AEC **Course Code:**

Credits: 2 **No of Hours: 30 Hours**

- **Course Outcome:**

- 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:

1) Possible communication in kannada between Patients and Doctors.

2) Advising sentences to the possible questions of patients.

3) Some important sentences which enable to communicate with doctors and colleagues.

- **Recommended Books**

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

SEMSTER III

SYSTEMIC PATHOLOGY

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

- **Course Outcomes:**

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

CO1: To be able to define the medical terms, define and classify disease and understand the concepts of the disease.

CO2: To be able to describe the causes and mechanism of common disease that occur during the routine work and also changes seen in different individual and various organs and fluids

CO3: To be able to enumerate various laboratory tests on various organs and serous cavities. Example: body fluids

- **Course Content:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of questions
Unit I	20 hours	**Cardiovascular system** **1.1 Atherosclerosis:** Definition, risk factors, pathogenesis, morphology and complications **1.2Ischemic Heart Disease:** Myocardial infarction- definition, pathogenesis, pathogensis, morphology and complications **1.3 Hypertension:** Benign and malignant hypertension: pathogenesis, pathology and complications **1.4Anuerysms** – Definition, classification, pathology and complications **1.5 Heart Failure- Right** and left heart failure: causes, pathophysiology and morphology	✓			40%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of questions
		1.6 Valvular Heart Disease- causes, pathology and complication. complications of arterial valves 1.7 **Rheumatic heart disease and infectious endocarditi**s –definition, etiopathogenesis, morphologyandcomplications. 1.8 **Congenital Heart disease**- types and atrial septal defect: aneurysm – types and morphology, cardiomyopathies in brief 1.9 **Pericardial effusion** – causes, effects and diagnosis . Cardiomyopathy – definition , types, causes and significance , Infective endocarditis myocarditis					
Unit 2	10 hours	**Hematology:** **2.1 Anemia:** definition, morphological types and diagnosis of anemia, brief concept about hemolyticanemia and polycythaemia **2.2 Leukocyte disorder:** briefly leukemia, leukocytosis, agranulocytosis etc **2.3 Bleeding disorder**: definition, classification, causes and effect of important types of bleeding disorders. Briefly various laboratory tests used to diagnose bleeding disorders	✓			13%	LE, SE

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of questions
		Respiratory System 3.1Atelectasis- types, Adult respiratory distress syndrome-causes, pathogenesis and morphology 3.2 Pulmonary edema – classification, causes and morphology					
Unit 3	15 hours	3.3Chronic obstructive pulmonary disease - Chronic bronchitis, emphysema, asthma, bronchiectasis: Definition, etiopat hogenesis and morphology 3.4Restrictive pulmonary diseases- Definition, categories, pathogenesis and morphology 3.5Pneumoconiosis-types, asbestosis, coal workers pneumoconiosis-etiopathogenesis and morphology 3.6Pleural effusion –causes, effects and diagnosis 3.7Pulmonary embolism, infarction, pulmonary hype rtension-Definition, etiopathogenesis and morphology	✓			26%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of questions
Unit 4	15 hours	**Renal system** **4.1** Clinical manifestation of renal disease. Briefky causes, mechanism, effects and laboratory diagnosis of ARF & CRF. Briefly glomerulonephritis and pyelonephritis **4.2** End stage Renal Disease – definition, causes, effects and role of dialysis and renal transplantation and its management **4.3** Briefly concept about obstructive uropathy	✓			21%	LE, SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended Books**

1) Dr.RamadasNayak, Text book of Pathology for Allied Health Sciences.
2) Comprehensive clinical Nephrology-6th edition- John feehaly.

APPLIED MICROBIOLOGY

Course: Core **Course Code:**

Credits: 4 **No of Hours: 60 Hours**

- **Course Outcomes:**

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

  CO1 To understand health care associated infections and antimicrobial resistance

  CO2 To acquire knowledge of the principles of sterilization and dis infection in hospital.

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit 1	30 Hrs	**Healthcareassociatedinfectionsa ndantimicrobialresistance** **1.1 Infection &Multidrug resistant organisms** 1.1.1 Definitions of various types of infections, Source of infection, modes of transmission, Drug resistant pathogens- methicillin resistant Staphylococcus aureus 1.1.2 Clostridium defile, Vancomycin resistant enterococci **1.2 Hospital acquired infections** 1.2.1 Definitions, criteria for diagnosis in brief and causative agents – catheterrelatedbloodstreaminfections,ventilatorassociatedpneumonia,surgicalsite infections **1.3 Microbiologyofurinarytractinfections** 1.3.3Definition, Causative agents,	✓ ✓	✓		**50%**	**LE,SE,SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		Transmission, Predisposing factors,Pathogenesis, Lab diagnosis in detail significant bacteriuria, catheter related urinary tractinfections **1.4 Healthcare personnel in hospital set up** 1.4.1 Disease communicable to hospital personnel and preventive measures tocombat the spread of these infections by monitoring and control- tuberculosis, HIV, hepatitisB,hepatitis C, salmonella 1.4.2 Respiratory route (varicella-zoster, respiratory syncitial virus etc),Blood borne transmission (cytomegalovirus, Ebola virus etc), orofaecal route (hepatitis Aetc),directcontact **1.5 Microbiological surveillance** 1.5.1 Definitions,Methods& sampling techniques Desirableto know: Toknow thehospital floraand toassess theantimicrobial resistance **1.6 Opportunistic infections** 1.6.1 In brief- opportunistic pathogens seen in Immunocompromised patients- Candida, Cryptococcus. 1.6.2 Parasites,viruses&bacteriaas opportunisticpathogens	✓ ✓	✓			

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		1.7 Disinfection of wards, OT andlaboratory 1.7.1 Disinfection of instruments used in patient careclassification,differentmethods, advantages anddisadvantages of thevarious methods.Disinfection of the patient care unit. Infection control measures for ICU's **1.8 Collection of specimen forsterility testing** 1.8.1 Collection of specimenfrom outpatient units,inpatient units, minoroperation theatre and majoroperation theatre forsterility testing Airsampling culture plates,interpretation of colonyforming units based on airflow rate and sampling time **1.9 Methods employed for sterilitytesting & Interpretation ofresults of sterility testing.** 1.9.1 Rooms: gaseoussterilization,Equipments:classification of theinstruments	✓	✓			

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		andappropriate methods ofsterilization. Centralsupply department: thefour areas and thefloor plan forinstrument cleaning,high-level disinfectingand sterilizing areas.Interpretation ofsterility ofhemodialysiswater/distilled water/de ionized water,based on growth of colonies in BHI Agarto be reported as XCFU/ unit					
Unit 2	**30 Hrs**	**2.1 Immunity** 2.1.1 Definition, Classification of methods, Principles of Dry heat, Moist heat,Autoclaving in detail- Preparation of materials for Autoclaving: packing of different types ofmaterials,loading, holding timeand unloading. 2.1.2 Hot Air Oven **2.2 Disinfection, antiseptics** 2.2.1 Disinfection of instruments used in patient care: classification, different	✓ ✓	✓			

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		methods, advantages and disadvantages of the various methods. Disinfection of the patient care unit. Infection control measures for ICU's.	✓				
		2.2.2 Disinfectant efficacy testing				**50%**	**LE,SE,SA**
		2.3 Sterilization – applied aspects					
		2.3.1 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.	✓	✓			
		2.3.2 Quality control in CSSD		✓			
		2.4 Principles of autoclaving &quality control of sterilization.Infection & and Multidrug resistantorganisms					
		2.4.1 Principles of autoclaving & and quality control ofsterilization. Definition,Classification of methods,Principles of Dry heat, moist heat					
		2.4.2 In detail autoclaving Preparation of materialsfor					

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		autoclaving:packing of different types ofmaterials, loading, holding time and unloading. Dryheat/Moist heat: Temperature recordingcharts interpretation, Color change indicatorsinterpretation 2.4.3 Definitions, criteria for diagnosis in brief and causative agents – catheter related blood streaminfections, ventilator associated pneumonia,surgical site infections **2.5 Bacteriological analysis of water** 2.5.1 Differentsamplingtechniquesf orpotablewater,ROwater,dialy sate. 2.5.2 Endotoxin testing					

LE- Long Essay**, SE-** Short Essay**, SA-** Short Answer

Text book / Referene Books:

1) Baveja CP. Textbook of microbiology. Arya Publications; 2005.
2) Ananthanarayan R. Ananthanarayan and Paniker's textbook of microbiology. Orient Blackswan; 2006.

GENERAL PHARMACOLOGY

Course type: Core **Course code:**

Credits: 04 **No of Hours: 60 hours**

- **Course Outcomes:**

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

CO1. Know the basics of Pharmacology like sources of drugs, routes of drug administration Administration and general principles

CO2. Describe the principles of pharmacokinetics and pharmacodynamics

CO3. To appreciate various adverse drug reactions

CO4. To have a basic knowledge of drugs affecting various body systems

- **Course Content:**

Unit	Hrs	Content	√	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit I	8hrs	**General Pharmacology** 1.1Introduction to Pharmacology 1.2 Routes of drug Administration 1.3Absorption & Distribution Metabolism Excretion 1.4 Pharmacodynamics - Mechanism of drug action-receptors 1.5 Factors modifying drug actions 1.6 Adverse drug reactions				15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
Unit II	6hrs	**Autonomic Nervous System drugs** 2.1 Sympathomimetics 2.2 Alpha blockers 2.3 Beta-blockers 2.4 Cholinomimetics 2.5 Anticholinergics 2.6 Skeletal muscle relaxants	√			15%	LE, SE, SA
Unit III	11hrs	**Central Nervous System** **3.1** Opioid analgesics 3.2 Non-opioid analgesics (Prostaglandins) 3.3 NSAIDs 3.4 Ethyl alcohol 3.5 Sedative hypnotics 3.6 Antiepileptic drugs 3.7 Local anesthetics-1 3.8 Local anesthetics-2 3.9 General anesthetics- I 3.10 G A – II (PAM) 3.11 CNS stimulants	√			20%	LE, SE, SA
Unit IV	9hrs	**Cardio Vascular System Drugs** 4.1 Diuretics 4.2 Vasodilators (CCB's, Drugs acting on RAS) 4.3 Antihypertensives 4.4 Antianginal drugs 4.5 Pharmacotherapy of shocks	√			15%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
		4.6 Cardiac glycosides 4.7 Cardioplegic drugs 4.8 Antiarrhythmic drugs 4.9 Primary solutions					
Unit V	6hrs	**Blood** 5.1 Anaemia, erythropoietin 5.2 Anticoagulants 5.3 Anti platelet drugs 5.4 Fibrinolytics, 5.5 Lipid lowering drugs 5.6 Vit.D and calcium, folic acid, phosphate binders			√	5%	SE, SA
Unit VI	1hrs	**Endocrines** 6.1 Corticosteroids			√	5%	SE, SA
Unit VII	9 hrs	**Chemotherapy** 7.1 General Principles of Chemotherapy 7.2 Sulfonamides 7.3 Penicillins 7.4 Cephalosporins 7.5 Broad spectrum antibiotics 7.6 Macrolides 7.7 Aminoglycosides 7.8 Chemotherapy of UTI 7.9 Drug Therapy of Tuberculosis	√			15%	LE, SE, SA
Unit	10 hrs	**Miscellaneous topics**		√		10%	SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Questions
VIII		8.1 Antihistamines 8.2 Antiemetics 8.3 Drugs used in bronchial asthma 8.4 Drugs used in bronchial asthma-2 8.5 Cough 8.6 Inhalational gases and emergency drugs 8.7 I V fluids 8.8 Metabolic and electrolyte imbalance 8.9 Immunosuppressants 8.10 Antiseptics and disinfectants					

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

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:

1. ShanBhag T V, Shenoy S& Nayak V.Pharmacology For Nurses, Elesever; 3rd edition.2023.
2. Udaykumar P. Textbook of Pharmacology for Dental and Allied Sciences. Jaypee Brothers Publishers; 4th edition. 2017.

PATIENT ASSESSMENT - MEDICAL

Course: Core **Course code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Able to perform assessment of patients with medical emergencies.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit I	15hrs	Perform the phases of patient assessment 1.1 Initial Assessment: The general impression of the patient to determine priority of care 1.2 Assessment of the mental status, grading of levels of mental status 1.3 Assessment of Patient's airway, Breathing & Circulation 1.4 Arrangement needed for Airway Management. 1.5 Manual techniques, Oropharyngeal airways 1.6 Nasopharyngeal airways, Oropharyngeal suctioning, Perform Respiratory Support 1.7 Oxygen administration, Bag valve mask ventilation Demand valve resuscitators	✓			20%	LE, SE, SA
Unit II	15hrs	Focused History and Physical Examination – Medical 2.1 Assess History of Present illness 2.2 Assess sample history	✓			20%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		2.3 Perform rapid assessment 2.4 Unresponsive Medical patients 2.5 Assessing a specific chief complaint, difference in assessing a patient with altered mental status 2.6 And other responsive patients					LE, SE, SA
Unit III	15hrs	Ongoing Assessment 3.1 To make general impression of the patient, repeated 3.2 Initial assessment 3.3 Reassessment of mental status, Airway, Breathing – rate, quality, Skin color, vital signs 3.4 Reestablish patient's priorities, reassessment of patient complaint or injuries. 3.5 Checking Interventions – Adequacy of Oxygen delivery/artificial ventilation. 3.6 Management of bleeding, adequacy of other interventions	✓			20%	LE, SE, SA
Unit IV	10hrs	Detailed Physical Examination 4.1 Patient and injury specific 4.2 Detailed physical examination to gather additional	✓			20%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		information-Inspect, palpate. 4.3 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.					LE, SE, SA
Unit V	5hrs	Assessment of patients with behavioral emergencies		✓		20%	SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books

1. Macleod's clinical examination 10th edition Editor-John Macleod, John F.Munro- Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21st edition Editor-Michael Swash-Saunders Elsvier
3. Manual of practical medicine- R.Alagappan 3rd edition-Jaypee
4. Davidson's Text book Of General Medicine

PATIENT ASSESSMENT – MEDICAL SKILLS

Course: Core **Course code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Able to perform assessment of patients with medical emergencies.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90hrs	Demonstration of patient assessment in emergency department, ward, and field	✓			20%

Recommended Books

1. Macleod's clinical examination 10th edition Editor-John Macleod, John F.Munro-Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21st edition Editor-Michael Swash-Saunders Elsvier
3. Manual of practical medicine- R.Alagappan 3rd edition-Jaypee
4. Davidson's Text book Of General Medicine

YENEPOYA
(DEEMED TO BE UNIVERSITY)

INTRODUCTION TO EMERGENCY SERVICES – II

Course: Core **Course code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes

CO1: Student will learn to perform cardiac resuscitation with all advanced intervention

CO2: Able to follow universal precaution and infection prevention during procedures.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit I	15hrs	Principles of resuscitation 1.1 Sudden cardiac death 1.2 Cardiac, respiratory arrest 1.3 Basic cardiopulmonary resuscitation in adults 1.4 Advanced cardiac life support 1.5 Resuscitation in neonates 1.6 Resuscitation in pediatrics 1.7 Resuscitation in pregnancy 1.8 Chocking - Infant, Adult and Pediatrics 1.9 Ethical issues	✓			20%	LE, SE, SA
Unit II	15hrs	Specific resuscitative procedures 2.1 Air way management 2.2 Breathing and ventilation management 2.3 Venous and intra osseous access 2.4 Defibrillation and cardio version 2.5 Fluid and blood resuscitation 2.6 Vaso active agents in resuscitation	✓			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		2.7 Arrhythmias 2.8 Cricothyroidotomy, 2.9 Needle thoracocentesis, 2.10Pericardiocentesis 2.11Tourniquet application					
Unit III	10hrs	The emergency response team 3.1 Characteristics of team leader, roles of team members, closed loop communication, constructive criticism	✓			20%	LE, SE, SA
Unit IV	15hrs	Universal Precautions and Infection Control 4.1 Hand washing and hygiene. 4.2 Injuries and Personal protection, Insulation and safety procedures. 4.3 Aseptic techniques, sterilization and disinfection. 4.4 Disinfection and Sterilization of devices and equipment 4.5 Central sterilization and supply department 4.6 Biomedical Medical waste management	✓			20%	LE, SE, SA
Unit V	5hrs	Documentation 5.1 The patient's medical record, charting, electronic medical records, hand-off at shift change and when transferring the patient 5.2 Medico legal aspects	✓			20%	LE, SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

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

INTRODUCTION TO EMERGENCY SERVICES – II SKILLS

Course: Core **Course code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes

CO1: Student will learn to perform cardiac resuscitation with all advanced intervention

CO2: Able to follow universal precaution and infection prevention during procedures.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90hrs	Preparation of an ambulance problem based on triage Basic life Support skills	✓			100%

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

HUMAN RIGHTS AND GENDER EQUITY

Course: VAC **Course Code:**

Credits: 2 **No of Hours: 30 Hours**

- **Course Outcome:**

  At the end of this course, students will gain knowledge on,

  CO1: Basic Knowledge of Human Rights and its function and authorities in society and industry women's status, issues and gender equity.

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit I	5hrs	Human Rights 1.1 Human Rights –Meaning 1.2 Universal declaration of Human Rights	√			20 %	SE, SA
Unit II	5hrs	Human Rights Advocacy 2.1 Global Advocacy of Human Rights; Amnesty International and Other Organisations 2.2 People's Union for Civil Liberty (PUCL) 2.3 Human Rights Commission in India 2.4 Minority Commission in India 2.5 Remedies Against Violation of Human Rights in India	√			25%	SE, SA
Unit III	5hrs	Gender Equity Key Concepts- 3.1 Sex and Gender 3.2 Masculinity and Femininity 3.3 Patriarchy, Matriarchy 3.4 Gender roles and Attributes,Gender Division of Labour 3.5 Gender Bias 3.6 Gender Stereotypes	√			20%	SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
		3.7 Need for Gender Sensitization					
Unit IV	5hrs	Women's Status in India Important indicators-Sex Ratio,Education,Health, Nutrition, Maternal and Infant Mortality,Work Participation Rate,And Political Participation.	√			15%	SE, SA
Unit V	5hrs	Contemporary Women's Issues 5.1 Discrimination Against Girl Child 5.2 Violence Against Women 5.3 Problems of health and nutrition 5.4 Women's Education and Gender Bias in Education 5.5 Trafficking in women 5.6 Globalization and Impact on Women	√			15%	SE, SA
Unit VI	5hrs	State Initiatives for Gender Equity 6.1 Constitutional Rights of Women 6.2 Laws Pertaining to Women 6.3 The National and State Commissions for Women		√		05%	SE

- **LA-** Long Answer**, SE-** Short Essay**, SA-** Short Answer

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 BharathPrakashan publishers, 2016.
3. Parvathy Appaiah,Human Rights, Gender Equity and Environmental Studies, Jai BharathPrakashan publishers, 2018-19.
4. NirmalChiranjivi:Human Rights in India,New Delhi,OUP,2001.

SEMESTER IV

EMERGENCY DEPARTMENT EQUIPMENT–PART II

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes

CO1: Able to perform emergency procedures

CO2: Trained to use advanced emergency equipment

CO3: Able to perform/assist basic diagnostic testing.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit 1:	20 hours	Basic principle,description, types,usage, calibration and maintenance of 1.1 Electrocardiograph. 1.2 Multi-parameter monitors. 1.3Esophageal - tracheal combitube. 1.4 Nebuliser. 1.5 Defibrilator, AED. 1.6 Ventilator. 1.7 Crashcart. 1.8 Trolleys and stretchers. 1.9 Anesthesia work station.	✓			45%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit 2:	20 hours	Basic principle, description, types, usage, calibration and maintenance of 2.1 Splints, POP and immobilization devices. 2.2 Dressing and procedure packs materials. 2.3 Foley's catheter. 2.4 Naso gastric tube.	✓			35%	LE, SE, SA
Unit 3:	20 hours	Basic principle, description, types, usage, calibration and maintenance of 3.1 POC Investigation of ultrasound. 3.2 Bed side X-ray. 3.3 POC blood and urine investigations	✓			20%	SE, SA

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended Books:

1. Suresh S. David: Hand book of Emergency Medicine, Elsevier India
2. S. V. Mahadevan, Gus M. Garmel: An Introduction to Clinical EmergencyMedicine; Cambridge University Press

EMERGENCY DEPARTMENT EQUIPMENT–PART II SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes

CO1: Able to perform emergency procedures

CO2: Trained to use advanced emergency equipment

CO3: Able to perform/assist basic diagnostic testing.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit 1	90 hours	1.1 Immobilization Devices 1.2 Traction & Splinting 1.3 Plaster of Paris.	✓			100%

Recommended Books:

1. Suresh S. David: Hand booo-f Emergency Medicine, Elsevier India
2. S..V. Mahadevan, Gus M. Garmel: An Introduction to Clinical EmergencyMedicine;Cambridge University Press.

MEDICAL EMERGENCIES – I

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Understanding the difference between medical & Traumatic emergencies.

CO2: Able to manage pulmonary, cardiology & neurological emergencies with all advanced techniques in the field and emergency department.

CO3: Trained for fluid therapy.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit 1:	15hours	**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 1.1 Respiratory failure 1.2 Upper airway obstruction 1.3 Pneumothorax 1.4 Acute asthma 1.5 Acute exacerbation of COPD 1.6 Hemoptysis 1.7 Pleural effusion and empyema 1.8 Pneumonia	✓			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit 2:	15hours	**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 2.1 Hypovolemia 2.2 Fluid overload states 2.3 Hyperkalemia 2.4 Hypokalemia 2.5 Hypernatremia 2.6 Hyponatremia 2.7 Hypocalcemia	✓			25%	LE, SE, SA
Unit 3:	15hours	**Neurological Emergencies** 3.1 Approach to the unconscious patient. 3.2 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.	✓			25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		3.3 Ischemic stroke: presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, ACLS protocoal 3.4 Intra cerebral hemorrhage: presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, ACLS protocoal. 3.5 Meningoencephalitis: possible causes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management.					
Unit 4:	15hours	**Shock and sepsis** Definition and types of shock Possible causes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management 4.1 Cardiogenic shock. 4.2 Anaphylaxis and anaphylactic shock. 4.3 Sepsis	✓			20%	LE, SE

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended Books:

1. Suresh S. David: Hand book of Emergency Medicine, Elsevier India
2. S. V. Mahadevan, Gus M. Garmel: An Introduction to Clinical EmergencyMedicine; Cambridge University Press
3. Donald C. Correll: The Nurse Practitioner Practice Guide-: For Emergency Departments, UrgentCare Centers, and Family Practices, FOURTHEDITION; Acute Care Horizons, LLC
4. Aggarwal Praveen, George K. Mathew: Medicine: Prep Manual forUndergraduates; Elsevier India

MEDICAL EMERGENCIES – I SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Understanding the difference between medical & Traumatic emergencies.
CO2: Able to manage pulmonary, cardiology & neurological emergencies with all advanced techniques in the field and emergency department.
CO3: Trained for fluid therapy.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit-1	90 hours	Medical Emergencies. • 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	✓			100%

Recommended Books:

1. Suresh S. David: Hand booo-f Emergency Medicine, Elsevier India
2. S.V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency Medicine;

PATIENT ASSESSMENT – TRAUMA

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:
CO1: Able to perform assessment of patients with medical emergencies.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit 1:	15hours	Rapid trauma assessment 1.1 Start with initial assessment 1.2 Assess the head, Neck, cervical spine, chest, Abdomen. 1.3The 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.	✓			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit 2:	30hours	Focused assessment 2.1 Focused History and Physical Examination – Trauma 2.2 Ongoing Assessment – to make general impression of the patient, repeated Initial assessment 2.3 Reassessment of mental status, Airway, Breathing – rate, quality, Skin color, vital signs 2.4 Reestablish patient's priorities, reassessment of patient complaint or injuries. 2.5 Checking Interventions – Adequacy of Oxygen delivery/artificial ventilation. 2.6 Management of bleeding, adequacy of other interventions. 2.7 Reconsider Mechanism of injury – significant mechanism of injury, infant and child consideration.	✓			40%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		2.8 Focused assessment on the specific injury site 2.9 Baseline vital signs					
Unit 3:	15hours	3.1 Assessment of cases with legal implications or which require evidence preservation. 3.1.1 Sexual assault / rape. 3.1.2 Child/ elderly abuse. 3.1.3 Shootings/ stabbing. 3.1.4 Animal bites. 3.2 How to go about 3.2.1 Presumed dead on arrival. 3.2.2 Do not resuscitate	✓			30%	LE, SE, SA

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended Books

1. Macleod's clinical examination 10th edition Editor-John Macleod, John F.Munro-Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21st 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

PATIENT ASSESSMENT – TRAUMA – SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:
CO1: Able to perform assessment of patients with medical emergencies.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit - 1	90 hours	Trained to perform assessment of patients with medical emergencies.	✓			100%

Recommended Books

1. Macleod's clinical examination 10th edition Editor-John Macleod, John F.Munro-Churchill Livingstone Elsevier
2. Hutchinson's clinical methods 21st 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

ENVIRONMENTAL STUDIES

Course: VAC **Course Code:**

Credits: 2 **No of hours: 30 hours**

Course Outcome:

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

CO1: Student will be able to learn about environment, factors affecting it, environmental ethics and its protection.

CO2: Student will be able to describe a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, ethical, political, health and safety, manufacturability and sustainability

CO3: Student will be able to critically analyze technical subject matter (Written/ oral) for scientific merit apply learnt environmental knowledge and understanding to solve technical or research problems in new contexts

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Question type
Unit I	2 hrs	**Multidisciplinary nature of Environmental Studies** • Multidisciplinary nature of Environmental Studies Environment definition, Components of environment, Scope of environmental studies. Four spheres of earth (Hydrosphere, Atmosphere, Lithosphere and Biosphere) • Concept of sustainability and sustainable development (Brundtland Commission), pillars of sustainability; Sustainable Development Goals (SDGs).	✓			**5%**	**SE, SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Question type
		• International Agreements: Montreal protocol, Kyoto protocol, Convention on Biological Diversity (CBD)					
Unit II	6 hrs	**Ecosystems** • What is an ecosystem? Ecological units. Structure of an ecosystem; biotic and abiotic components, and function of an ecosystem; energy flow in the ecosystem; biogeochemical cycle, biological interactions, food chains, food webs, ecological pyramids and ecological succession. • Types of ecosystems: a. Terrestrial • Forest ecosystem – tropical evergreen, tropical deciduous, temperate evergreen, temperate deciduous and Taiga/Boreal • Grassland ecosystem – Savannas and Temperate grasslands (Steppes, Pampas, Prairies,Veldt and Downs. • Desert ecosystem – hot and dry, semi-arid, coastal and cold. Plant and animal adaptations. b. Aquatic ecosystems – Marine, Freshwater	✓			10%	**SE, SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Question type
		(lentic and lotic) and Estuarine; Pond as an ecosystem. • Ecosystem services					
Unit III	7 hrs	**Natural Resources** • Classification of natural resources - Renewable and Non-renewable resources • Forest resources: Uses (timber, medicinal, food, economic importance, prevent soil erosion, control floods, religious and cultural practices) and overexploitation (Deforestation, timber extraction, mining, construction of dams). • Water resources: Uses (domestic, agricultural, industrial, electricity and transport) and over utilization of surface and ground water (drying of wells, lakes and ponds, extraction of groundwater, decrease in water table, deterioration of water quality and land subsidence). Floods, Drought, dams – benefits and problems, conflicts over water (state and international) • Land resources: Land as a resource; Land degradation, earthquake, landslides, soil erosion and desertification. • Energy resources:	✓			15%	**SE, SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Question type
		Renewable and non-renewable energy sources, growing energy needs, use of alternate energy sources, case studies (Kochi – first solar powered airport, Tamilnadu – windmills, Gujarat – tidal energy) • Conservation of forest, water, land and energy resources.					
Unit IV	7 hrs	**Biodiversity and its conservation** • Introduction; Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; 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. • Human wildlife conflicts in Indian – People and wildlife	✓			15%	**SE, SA**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Question type
Unit V	8 hrs	**Environmental Pollution** Definition • Cause, effects and control measures/management of: - a. Air pollution b. Water pollution c. Soil pollution d. Light pollution e. Noise pollution f. Thermal pollution g. Radiation pollution • Pollution case studies (London smog, Bhopal gas tragedy, Beijing/Delhi air pollution, Eutrophication, Minamata disease, Exxon Valdez oil spill, Love canal tragedy, Chernobyl disaster) • Climate change, Greenhouse effect, Global warming, Acid rain, Ozone layer depletion. • Solid waste management: control measures of urban and industrial wastes. • Carbon footprint – How to calculate carbon footprint and ways to reduce your carbon footprint. • Human Population growth – impacts on environment • Environmental movements: Chipko movement, Bishnois of Rajasthan,Silent Valley, Narmada bachao andolan	✓			15%	**SE, SA**

❖ **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- SE- Short Essay, SA- Short Answer

Suggested Readings:

1. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P. H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.
7. McCully, P. 1996. Rivers no more: the environmental effects of dams (pp. 29-64). Zed Books.
8. McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. Fundamentals of Ecology. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. Environmental law and policy in India. Tripathi 1992.
14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.

17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
18. Warren, C. E. 1971. Biology and Water Pollution Control. WB Saunders.
19. Wilson, E. O. 2006. The Creation: An appeal to save life on earth. New York: Norton.
20. World Commission on Environment and Development. 1987. Our Common Future. Oxford University Press

SEMESTER V

TRAUMA 1

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:
CO1: Able to identify severity of injury
CO2: Advanced bleeding management

Course Contents:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit 1	10 hrs	**1.1Introduction to Trauma Management** Definition of trauma. Trauma Assessment, Trauma Scoring. 1.2Musculoskeletal trauma**:** **Skeletal Fractures** Principles of management of fractures 1.3 Common fractures and joint injuries, Management of joint injuries.	✓			20%	LE, SE, SA
Unit 2	20 hrs	**2.1 Lifting, Moving, and Handling of patients with multiple Injuries** Various devices associated with moving a patient in a pre-hospital set-up. **2.2 Bandaging and Splinting, Traction and Splinting, Spinal Immobilization**	✓			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		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					
		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 3	15 hrs	**3.1Soft 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. 3.2**Bleeding Management** Types of bleeding, External Bleeding – Severity & Emergency medical care	✓			25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		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 4	15 hrs	**4.1 Hypovolemic Shock** Severity, signs and symptoms of shock, Emergency medical care. **4.2 Head injury** ● Presentation of Head injury ● Assessment and investigation ● Management	✓			25%	LE, SE, SA

❖ **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books:

- SureshS.David:Handbookof EmergencyMedicine ,ElsevierIndi
- S..V.Mahadevan, GusM.Garmel:AnIntroductiontoClinicalEmergency Medicine; Cambridge University Press DonaldC.Correll:The Nurse Practitioner Practice Guide.
- RobertL. Wilkins, James K. Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication.

TRAUMA – I SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hour**

Course Outcomes:
CO1: Able to identify severity of injury
CO2: Advanced bleeding management

Course Contents:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit 1	90 hrs	1.1 Biochemical, Radiological Investigations on receiving the trauma patient Emergency Department 1.2 Continuous monitoring of patient in emergency Department 1.3 Clearing the airway, suction the oropharynx, stabilizing the spinal and positioning the patient in poly trauma, oxygen therapy 1.4 Assessment of level of consciousness in trauma 1.5 Recognition and management of hemorrhage shock in EMD	✓			100%

Recommended Books:

1. SureshS. David: Handbook of Emergency Medicine, ElsevierIndia

2. S..V. Mahadevan, GusM.Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press

EMERGENCY OBSTETRICS & NEONATAL CARE

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1 : The student able to assess the physical changes that take place in a child bearing woman.
CO2: The students gain knowledge on the specific injuries that can occur in pregnancy.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit I	10hrs	1.1 Anatomical and Physiological changes that occur during pregnancy 1.1.1 Anatomy of Female reproductive system 1.1.2 Menstrual Cycle 1.2 Diagnosis of Pregnancy 1.2.1 First trimester 1.2.2 Second trimester 1.2.3 Last trimester 1.2.4 Differential diagnosis of pregnancy	✓			20%	LE, SE, SA
Unit II	15hrs	2.1 Hypertensive disorder in pregnancy 2.1.1 Pre-Eclampsia 2.1.2 Eclampsia 2.1.3 Essential Hypertension in Pregnancy 2.2 Normal Labor 2.2.1 Causes of Onset 2.2.2 Physiology 2.2.3 Mechanism 2.2.4 Management	✓			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		2.2.5 Postpartum Hemorrhage 2.3 Pharmacotherapeutics in Obstetrics 2.3.1 Oxytocin 2.3.2 Analgesia and Anesthesia					
Unit III	20hrs	3.1 Malposition, Malpresentation, Cord Prolapse 3.1.1 Occipito posterior position 3.1.2 Breech Presentation 3.1.3 Face Presentation 3.1.4 Brown presentation 3.1.5 Cord Prolapse 3.1.6 Transverse lie 3.2 Antepartum Hemorrhage 3.2.1 Placenta Previa 3.2.2 Abruptio Placenta 3.3 Hemorrhage in Early Pregnancy 3.3.1 Abortion 3.3.2 Ectopic Pregnancy	✓			20%	LE, SE, SA
Unit IV	10hrs	Neonatal Resuscitation 4.1 Newborn care and assessment 4.2 APGAR scoring 4.3 Premature infant care 4.4 Fetal monitoring	✓			20%	LE, SE, SA
Unit V	5hrs	Trauma in Pregnancy 5.1 Mechanism 5.2 Assessment and management	✓			20%	LE, SE

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

RECOMMENDED BOOKS:

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

EMERGENCY OBSTETRICS& NEONATAL CARE SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1 : The student able to assess the physical changes that take place in a child bearing woman.

CO2: The students gain knowledge on the specific injuries that can occur in pregnancy.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90hrs	History taking, Examination and Presentation of pregnant women	✓			100%

RECOMMENDED BOOKS:

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

PAEDIATRIC, GERIATRIC &PSYCHIATRIC EMERGENCIES

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Able to manage geriatric emergencies

CO2: Able to manage paediatric emergencies

CO3: Able to manage psychiatric emergencies

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit I	20hrs	Pediatric Emergency 1.1 Identify the developmental consideration for infants, Toddlers, Pre-school, School age adolescents 1.2 Describe differences in anatomy and physiology of the infant, child and adult patient 1.3 Differentiate the response of the ill or injured infant or child (age specific) from that of adult 1.4 Differentiate between the injury patterns in adult, infants and children 1.5 Field management of the infant and child trauma patient 1.6 Child abuse and neglect – indicators, management, medicolegal responsibilities 1.7 Infant and child transport – Special considerations and difficulties in lifting and moving techniques	✓			25%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit II	10hrs	Geriatric patient 2.1 Geriatric Abuse 2.2 Approach to the geriatric patient in the EMD 2.3 Fall in elderly – Presenting symptoms, clinical assessment, basic initial management	✓			25%	LE, SE, SA
Unit III	15hrs	Patient with psychiatric illness 3.1 Acute mania, Anxiety and panic attacks – Presenting symptoms, clinical assessment, basic initial management 3.2 Depression – presenting symptoms, clinical assessment. Basic initial management 3.3 Restraints, pharmacological restraint and medico-legal issue of restraint	✓			25%	SE, SA
Unit IV	15hrs	4.1 SAMPLE History; Allergies, Medications, pertinent past history, Last oral intake, Events leading to illness or injury 4.2 Definition of: 4.2.1 Consent 4.2.2 Assault/Battery 4.2.3 Refusal 4.2.4 Abandonment 4.2.5 Negligence 4.2.6 Confidentiality	✓			25%	SE, SA

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended Books

1. Suresh S. David: Handbook of Emergency Medicine, ElsevierIndia

2. S.V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press

YENEPOYA
(DEEMED TO BE UNIVERSITY)

PAEDIATRIC, GERIATRIC &PSYCHIATRIC EMERGENCIES SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Able to manage geriatric emergencies

CO2: Able to manage paediatric emergencies

CO3: Able to manage psychiatric emergencies

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	15 hrs	Recognition and management of dehydration and hypovolemia in EMD	✓			20%
Unit II	15 hrs	Loading the drugs, Calculating dose, dilution of the drug, Administration of Drug by IM, IV, SC, Intradermal test dose	✓			15%
Unit III	15 hrs	Starting IV Infusion/Nebulisation in EMD	✓			15%
Unit IV	15 hrs	Biochemical, Radiological Investigations on receiving the patient surgical emergencies in emergency department Assessment of child in the Emergency Department	✓			15%
Unit V	15 hrs	Assessment of Child in the Emergency Department	✓			15%
Unit VI	15 hrs	Airway Management and resuscitation of an infant and resuscitation of child	✓			20%

Recommended Books

1. Suresh S. David: Handbook of Emergency Medicine, ElsevierIndia
2. S.V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency Medicine; Cambridge University Press

MEDICAL ETHICS

Course: VAC **Course Code:**

Credits: 2 **No of Hours: 30 Hours**

- **Course Outcomes:**

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

CO1: Increasing the awareness and knowledge of students of the valuedimensions of interactions with the patients, colleagues, relations andpublic.

CO2: Fostering the development of skills of analysis, decision making and judgment.

CO3: Making the students aware of the need to respect the rights of the patient.

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit I	3hr	**Introduction to ethics** What is ethics, what are values and norms, freedom and personalresponsibility?	✓			15%	SA, SE
Unit II	4hrs	**Definition of medical ethics** Major principles of medic ethics.	✓			20%	LE, SA
Unit III	4hrs	**Perspective of medical ethics** 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).	✓			15%	LE, SA, SE
Unit IV	4hrs	**Ethics of the individual**Truth and confidentiality, the concept of disease, health and healing, the Rightto health.	✓			15%	SE

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type Of Questions
Unit V	3hrs	**The ethics of human life** Prenatal sex determination.	✓			15%	SA, SE
Unit VI	4hrs	**The family and society in medical ethics** Euthanasia, cancer and terminal care.		✓		10%	LE, SA
Unit VII	4hrs	**Death and dying** Use of life-support systems, the right to die with dignity, suicide–the Ethical outlook.		✓		05%	LE, SA, SE
Unit VIII	4hrs	**Professional Ethics** Contract and confidentiality, malpractice and negligence.		✓		05%	SA, SE

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

- **Recommended Books:**

1. Tsai DF. The WMA medical ethics manual. Journal of Medical Ethics. 2006 Mar 1;32(3):163
2. Loewy EE, Loewy RS. Textbook of healthcare ethics. Springer Science & Business Media; 2004 Jun 29.

SEMESTER VI

MEDICAL EMERGENCIES-II

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Trained to manage gastrointestinal, renal, endocrine and metabolic emergencies in the field and emergency department.

CO2: Able to manage poisoning & toxicology emergencies.

CO3: Trained to assess and management of animal bites & drowning.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
Unit I	10 hrs	Gastrointestinal Emergencies: Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management of 1.1 Acute Gastroenteritis 1.2 Upper GI Bleed 1.3 Lower GI Bleed 1.4 Acute Pancreatitis	✓			**20%**	LE, SE, SA
Unit II	10hrs	2.1 Hypoglycaemia 2.2 Hyperosmolar hyperglycemic state 2.3 Diabetic Ketoacidosis 2.4 Adrenal Crisis 2.5 Myxoedema 2.6 Thyroid Strom	✓			20%	LE, SE, SA
Unit III	10hrs	Renal Emergencies: Presenting Symptoms, clinical assessment	✓			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		and point of care investigations in the field and emergency department, basic initial management of 3.1 Urinary Tract Infection 3.2 Acute Renal Failure 3.3 Acute Pulmonary Edema in Renal Failure					
Unit IV	10hrs	Bites and Stings: 4.1 Snake Bite: Common Indian venomous snakes, presenting symptoms, clinical assessment and point of care investigations in the field and emergency department, basic initial management 4.2 Animal Bite: Dog bite, Wild animal bite, early management and rabis prophylaxis 4.3 Bee, wasp, spider, scorpion and other stings-initial management	✓			20%	LE, SE, SA
Unit V	20hrs	Environmental Emergencies: The risk factors, pathophysiology, assessment findings and management of: 5.1 Specific hyperthermia conditions	✓			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Types of Question
		5.2 Drowning and near drowning 5.3 Specific hypothermic conditions and Frostbite 5.4 Diving emergencies and high-altitude illness 5.5 Mechanical effects on the body based on knowledge of basic properties of gas 5.6 Poison and drug overdose, decontamination, common poisons encountered, basic initial management 5.7 Anaphylaxis, Purpura, Urticaria, Fixed drug eruption, Toxic epidermonecrolysis, Steven Johnson's Syndrome					

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books

1. Suresh S. David: Handbook of Emergency Medicine, ElsevierIndia
2. S. V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency
3. Medicine; Cambridge University Press
4. Robert L. Wilkins, James K. Stoller, CraigL. Scanlan: Egan's Fundamentals of
5. Respiratory Care [with Study Guide] Mos by Publication
6. Salyer, stevenw. *The Physician Assistant Emergency Medicine*
7. *Handbook.* Philadelphia: Saunders

MEDICAL EMERGENCIES – II SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Trained to manage gastrointestinal, renal, endocrine and metabolic emergencies in the field and emergency department.

CO2: Able to manage poisoning & toxicology emergencies.

CO3: Trained to assess and management of animal bites & drowning.

COURSE CONTENT:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	15hrs	Assessment, Evaluation and management of Unconscious patient	✓			20%
Unit II	15hrs	Evaluation and immediate management of Patient with Chest Pain	✓			20%
Unit III	15hrs	First aid for various medical and Surgical Emergencies	✓			15%
Unit IV	15hrs	Connecting Multipara monitor and interpretation of Various Values on the	✓			15%
Unit V	15hrs	Monitor, Interventions depending on the Various Vital Parameters Continuous Monitoring of patient in EMD	✓			15%
Unit VI	10hrs	Documentation of Initial assessment and progress Handing over the Patient ICU/ HDU or ward staff Inter Hospital Transfer of Patients	✓			5%
Unit VII	5hrs	Conducting Bio chemical and Radiological Investigations and Interpretation of results	✓			10%

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books

1. Suresh S. David: Handbook of Emergency Medicine, ElsevierIndia
2. S. V. Mahadevan, Gus M. Garmel: An Introduction to Clinical Emergency

DISASTER MANAGEMENT

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Rational decision-making capability.

CO2: Leadership quality

CO3: Trained to be part of a disaster preparedness team.

Course Content:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit I	15 hrs	**Introduction on Disaster** 1.1 Different Types of Disaster: 1.2 Natural Disaster: such as Flood, Cyclone, Earthquakes, Land Slides etc. 1.3 Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological Disaster, Accidents (Air, Sea, Rail& Road), Structural failure (Building and Bridge), War & Terrorism etc. 1.4 Causes, effects and practical examples for all disasters.	✓			35%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		1.1 Understanding Disasters Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity–Disaster and Development, and Disaster management					
Unit II	20 hrs	**Emergency First Aid at Disaster site** 2.1 Emergency Medical Triage 2.2 Patient Transport and logistics Management 2.3 Medical/Hospital contimgency planning 2.4 Disaster Preparedness 2.5 Disaster Preparedness: concept and significance 2.6 Disaster Preparedness Measure and Plan essentials 2.7 Essential Components of disaster response, disaster response plan, resource management – Financial,	✓			30%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		Medical, equipment, communication, Human transportation, Directing and controlling function 2.8 Communication, Participation and activation of emergency preparedness plan logistics management, emergency support functions, need and damage assessment 2.9 Institutional mechanism for disaster preparedness 2.10 Disaster Preparedness with special needs/vulnerable groups 2.11 Disaster preparedness policy and programs practical: mock Disaster Management drills disaster preparedness 2.12 Designated EMD as Command Centre during Disaster 2.13 Assigning Roles during Disaster					
Unit III	25 hrs	Types of Triage 3.1 Simple Triage and Rapid Treatment	✓			35%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		3.2 Simple triage and evacuation 3.3 Advanced triage 3.4 Disaster First Aid (DFA) and advanced Triage 3.5 Mass Casualty incident triage system 3.6 Introduction and goals of MCI triage 3.7 MCI triage consideration for hospitals 3.8 Problems with MCI Triage 3.9 Operational difficulties with MCI triage					

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books

1. Disaster Management Guidelines, GOI-UND Disaster Risk Program (2009-2012)
2. Damon, P. Copola, (2006) Introduction to International Disaster Management, Butter worth Heineman.
3. Gupta A. K., Niar S. Sand Chatterjee S. (2013)Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.
4. Murthy D.B.N. (2012) Disaster Management, Deepand Deep Publication PVT. Ltd. New Delhi.
5. Modh S. (2010) Managing Natural Disasters, Mac Millan publishers India LT

DISASTER MANAGEMENT – SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Rational decision-making capability.

CO2: Leadership quality

CO3: Trained to be part of a disaster preparedness team.

Course Content:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage
Unit I	90hrs	Demonstration in ward and field	✓			100%

Recommended Books

1. Disaster Management Guidelines, GOI-UND Disaster Risk Program (2009-2012)
2. Damon, P. Copola, (2006) Introduction to International Disaster Management, Butter worth Heineman.
3. Gupta A. K., Niar S. Sand Chatterjee S. (2013)Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.
4. Murthy D.B.N. (2012) Disaster Management, Deepand Deep Publication PVT. Ltd. New Delhi.
5. Modh S. (2010) Managing Natural Disasters, Mac Millan publishers India LTD

TRAUMA – II

Course: Core **Course Code:**

Credits: 04 **No. of hours: 60 hours**

Course Outcomes:

CO1: Students will be able to manage trauma patients in the field and emergency department

Course Contents:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
Unit I	10 hrs	**Maxillofacial Trauma** 1.1 Maxillofacial Trauma 1.2 Classification of facial fractures 1.3 Presentation of maxillofacial fracture 1.4 Assessment and investigation 1.5 Treatment of facial fractures	✓			20%	LE, SE, SA
Unit II	15 hrs	**Thoracic Trauma** 2.1 Thoracic Trauma 2.2 Blunt and Penetrating trauma, the open sucking chest wound, tension pneumothorax, cardiac tamponade, rib fracture, flail chest, pneumothorax, hemothorax, presenting symptoms, clinical	✓			20%	LE, SE, SA

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		assessment and point of care, investigation in the field and emergency department, basic initial management					
Unit III	15hrs	Abdominal Trauma 3.1 Abdominal Trauma 3.2 Blunt and penetrating trauma, presenting symptoms, clinical assessment and point of care investigation in the field and emergency department, initial management of evisceration	✓			20%	LE, SE, SA
Unit IV	10hrs	Spinal Injury 4.1 Spinal Injury 4.2 Spinal Shock Neurogenic shock, presenting symptoms, clinical assessment and point of care investigation in the field and emergency department, basic initial management	✓			20%	LE, SE, SA
Unit V	10hrs	Burns 5.1 Burns and Associated Injuries	✓			20%	

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Question
		5.2 Types, depth and percentage of burns 5.3 Fluid resuscitation – Parkland formula, choice of fluid 5.4 Criteria for referral to burns Centre 5.5 Escharotomy/Fasciotomy 5.6 Medico Legal aspects 5.7 Electrocution: Presenting symptoms, clinical assessment and point of care investigations in the field and emergency department basic initial management					LE, SE, SA

- **LE-** Long Essay**, SE-** Short Essay**, SA-** Short Answer

Recommended Books

1. Suresh S. David: Hand book of Emergency Medicine, ElsevierIndia
2. Robert L. Wilkins, James K. Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication
3. Salyer, stevenw. The Physician Assistant Emergency Medicine
4. Handbook. Philadelphia: Saunders

TRAUMA – II SKILLS

Course: Core **Course Code:**

Credits: 03 **No. of hours: 90 hours**

Course Outcomes:

CO1: Students will be able to manage trauma patients in the field and emergency department

Course Contents:

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Teaching Learning Method	Weightage
Unit I	90hrs	Trauma Emergencies 1.1 Preparing an ambulance for trauma 1.2 Responding to a call and scene management of trauma 1.3 Receiving, triaging and resuscitating a patient with trauma in the emergency department, Initial Assessment of trauma in the Emergency Department 1.4 Documentation of vital parameters	✓			Cases based learning/Evidenced based learning/observational learning	100%

Recommended Books

1. Suresh S. David: Hand book of Emergency Medicine , ElsevierIndia
2. Robert L. Wilkins, James K. Stoller, CraigL. Scanlan: Egan's Fundamentals of Respiratory Care [with Study Guide] Mosby Publication
3. Salyer, stevenw. The Physician Assistant Emergency Medicine
4. Handbook. Philadelphia: Saunders

BIOSTATISTICS

Course: VAC **Course Code:**

Credits: 2 **No of Hours: 30 Hours**

- **Course Outcomes:**

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

CO 1: Understand the concepts of Statistics in the field of Health Professionals.

- **COURSE CONTENT:**

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
Unit I	3 hours	**Introduction** 1.1 Meaning, definition of statistics. 1.2 Importance of the study of statistics. 1.3 Branches of statistics. 1.4 Statistics and health science including nursing. 1.5 Parameters and estimates. 1.6 Descriptive and inferential statistics. 1.7 Variables and their types. 1.8 Measurement scales		✓		15%	**SA, SE**
		Tabulation of Data 2.1 Raw data, the array, frequency distribution					

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
Unit II	3 hours	2.2 Basic principles of graphical representation 2.3 Types of diagrams - histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, ogive. 2.4 Normal probability curve.	√			15%	SA, SE
Unit III	4 hours	**Measure of Central Tendency** 3.1 Need for measures of central tendency 3.2 Definition and calculation of mean - ungrouped and grouped 3.3 Meaning, interpretation and calculation of median ungrouped and grouped 3.4 Meaning and calculation of mode. 3.5 Comparison of the mean, and mode.	√			15%	LE, SE
Unit IV	6 hours	**Measure of Variability** 4.1 Need for measure of dispersion. The range, the average deviation. 4.2 The variance and standard deviation. 4.3 Calculation of variance and standard deviation ungrouped and grouped.	√			15%	LE, SE

Unit	Hrs	Content	Must Know	Good to Know	Desirable to Know	Weightage	Type of Questions
		4.4 Properties and uses of variance					
Unit V	6 hours	**Probability and Standard Distributions** 5.1 Meaning of probability of standard distribution. 5.2 The Binominal distribution. 5.3 The normal distribution. 5.4 Divergence from normality - skewness, kurtosis.	√			15%	SA, SE
Unit VI	5 hours	**Sampling Techniques** 6.1 Need for sampling - Criteria for good samples. 6.2 Various sampling designs. 6.3 Procedures of sampling and sampling designs errors. 6.4 Sampling variation. 6.5 Tests of significance.	√			15%	LE, SA, SE
Unit VII	3 hours	**Health Indicator** 7.1 Importance of health Indicator. 7.2 Indicators of population, morbidity, mortality, health services. 7.3 Calculation of rates and rations of health.		√		10%	SA, SE

- **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

➢ **Recommended Books:**

1. K S Negi, Biostatistics, Third Edition, AITBS Publishers, India, 2020.

2. K VisveswaraRao, Biostatistics a Manual of Statistical Methods for Use in Health Nutrition and Anthropology. 2 nd Edition, JAYPEE, 2009.

INTERNSHIP (SEMESTER VII &VIII)

ELIGIBILTY:

A candidate should have passed in all the courses (Core, AECC and Electives) amounting to 138 number of credits before entering in to internship.

DURATION:

A candidate has to mandatorily complete 1 year (2 semesters) of internship. The total credit per semester is 20 and for two semesters it is 40.

INTERNSHIP TRAINING RULES AND CODE OF CONDUCT

1. The duration of the internship shall be a minimum of one year or 2 semesters (8 hours of practice a day, totaling to 36 credits).

2. The Interns shall be entitled for 12 day total leave on any account during the entire period of Internship and no other leave shall be permissible.

3. 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.

4. If the period of leave exceeds the sanctioned limit, Internship is liable to be extended at the discretion of the authority. In case of Emergency any additional leave asked for shall be discretion of the authority and will be doubled.

5. The attendance of all the interns shall be marked/monitored by the respective Clinical coordinator and concerned HOD, by maintaining the intern's attendance register. All the interns are directed to mark their attendance, by putting their full initials (specimen signature to be given to the Clinical coordinator).

6. Interns shall observe duties as per the roaster devised by the department, and no change in duty shall be permissible without the permission of clinical coordinators Interns shall be courteous, polite, respectful and sympathetic towards the patients, their accompanying attenders, hospital staff and their colleagues.

7. Intern shall maintain decorum and commitment and discipline of the profession and show keen interest in patient care.

8. The interns will be entrusted with clinical responsibilities under supervision of the senior Technician/Technologist and are expected to discharge the duties assigned to them sincerely & effectively.

9. Aprons/scrubs & ID is mandatory while reporting to the Hospital and always carry the required articles needed for examination of the patients. A fine of Rs.500/- will be charged from the interns not using white coat/scrubs and identification card during their duty in the Hospital.

10. Scrubs should be worn inside the campus only. If found outside, a fine of Rs 500/- will be charged.

11. The performance shall be assessed based on the assessment sheet provided in the Log Book.

12.

Components of Exit Exam

SI.No.	Components	Marks
1	Spotters	30
2	Case scenario/Stations	30
3	Viva Voice	40
Total Marks		100

Exit Exam shall be conducted by the College and the marks shall be sent to the COE for needful.

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, i.e., depth of knowledge, logical reasoning, confidence &oral communication skills.
- OSCE/OSPE- shall have minimum of 3 stations.

ANNEXURES

List of Annexures:

- ANNEXURE – I: Model Question Paper of Theory for IA and SEE of Core course
- ANNEXURE – II: Model Question Paper for Theory of AEC/VAC
- ANNEXURE – III: Logbook Format
- ANNEXURE – IV: OSCE/OSPE Checklist

ANNEXURE – I

Model Question Paper of Theory for IA and SEE

I Semester B.Sc. Trauma Care Management

Time: 2 Hours Max. Marks: 50 Marks

SUBJECT NAME:

Q.P Code:

Your answer shall be specific to question asked.

Draw neat and labeled diagrams wherever necessary.

LONG ESSAY (Answer any One) (1x10=10Marks)

1.

2.

SHORT ESSAY (Answer any Five) (5x4=20Marks)

3.

4.

5.

6.

7.

8.

9.

SHORT ANSWERS (Answer any Ten) (10x2=20Marks)

10.

11.

12.

13.

14.

15

16.

17.

18.

19.

20.

21.

ANNEXURE – II

Model Question Paper for Theory of AEC/VAC

I Semester B.Sc. Technology

Time: 2 Hours Max. Marks: 50 Marks

English & Communication I

Q.P Code:

Your answer shall be specific to question asked.

Draw neat and labeled diagrams wherever necessary.

LONG ESSAY (Answer any One) (1x10=10Marks)

1.

2.

SHORT ESSAY (Answer any Five) (5x4=20Marks)

3.

4.

5.

6.

7.

8.

9.

SHORT ANSWERS (Answer any Ten) (10x2=20Marks)

10.

11.

12.

13.

14.

15

16.

17.

18.

19.

20.

YENEPOYA
(DEEMED TO BE UNIVERSITY)

ANNEXURE – III
LOG BOOK



YENEPOYA SCHOOL OF ALLIED HEALTH SCIENCES

A Constituent Unit of Yenepoya (Deemed to be University)

Mudipu, Mangalore - 574153

LOG BOOK - CLINICAL TRAINING

Bachelor of Science in

Trauma Care Management (B. Sc. TCM)

Name : _____

Reg. No. : _____

Academic Year : _____

YENEPOYA
[DEEMED TO BE UNIVERSITY]

YENEPOYA SCHOOL OF ALLIED HEALTH SCIENCES

Constituent Unit of **Yenepoya (Deemed to be University)**

Academic Details

Name:_____ Register ID: _____ Campus ID:_____ Semester:

Batch:_____ Academic Year: _____ Name of the Centre:

Signature of Student

Programme Coordinator

YENEPOYA
[DEEMED TO BE UNIVERSITY]

CERTIFICATE

This is to certify that the candidate Mr/Ms.....

Reg. No. ……..……., admitted in the year ……to the Yenepoya School of Allied Health Sciences, a constituent college of Yenepoya (Deemed to be University) has satisfactorily completed the requirements mentioned in this logbook for ….....semester, B.Sc. Trauma Care Management during the period from …… to……...

CLINICAL DATA SHEET

Name of the patient			
D.O.A:		Informant: (pt. Bystander/pt. Relative)	
Op/Reg. no		Date	
Age/sex		Arrival Mode:	
Manual inline / No inline Immobilisation		**Cervical Spine**	
		Normal	Suspected injury
Chief complaint:			
Physical examination	Conscious/ alert/ distress/ anxious/ drowsy/ stupor/ coma		
AIRWAY:	Able to speak / Secretions/ Stridor	Advanced Airway placed:	
BREATHING	B/L Chest rise:	SpO2:	RR: (b/m)
CIRCULATION:	Pulse(yes / no):		b/m
	Haemorrhage: external / internal	Peripheries:	
	Capillary refill:		BP: mmhg
DISABILITY:	GCS: E V M = /15		Temp:
Pupil: Size	R:	L:	GRBS:
Any life threatening Injuries	Open Pneumothorax Tension Pneumothorax Haemothorax Flail Chest Cardiac Tamponade		

S (Sign& Symptoms)	
A (Allergies)	
M (Medications)	
P (Past medical history)	

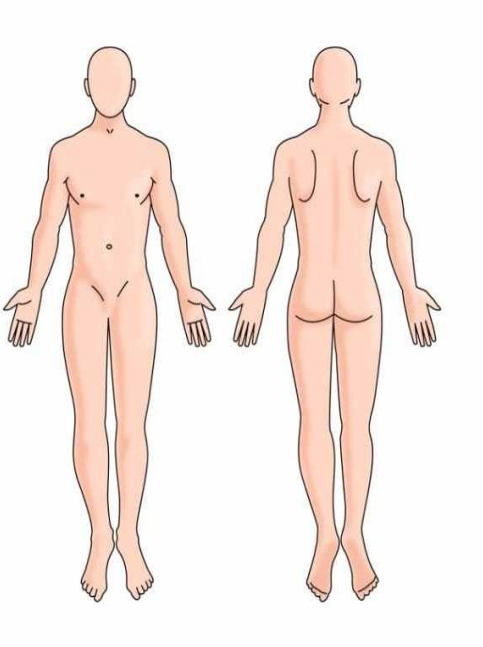
A (Abrasion)	
P(Penetration /Puncture)	
B (Burns)	
T (Tenderness)	
L (Laceration)	
S (Swelling)	
General Examination	Pallor Icterus Cyanosis Clubbing Lymphadenopathy Edema Any other:

PERSONAL HISTORY	Comorbidities:	
	Alcohol:	LMP:
	Smoking:	Family History:

SYSTEMIC EXAMINATION

	Inspection	**Palpation**	**Percussion**	**Auscultation**
Resp. System				
Cardiovascular system				
Abdomen				
Central nervous system				

Examination:



Fracture Management / Wound Management:

Investigation :

Blood&

Urine:

ECG:

Radiology:

Provisional Diagnosis:

Resuscitation / Treatment

Oxygenation	NG tube	IV Fluid and Medications:
Flow : Mask : Airway Size : ET tube Size:	Size:	

Annexure IV

OSCE/OSPE Check List

Criteria	Achieved	Not Achieved	Remarks
Station Preparation			
Instructions clear and visible	■	■	
Equipment and patient/simulator ready	■	■	
Examiner has marking scheme	■	■	
Time clearly indicated	■	■	
History Taking / Data Gathering			
Introduces self, confirms identity	■	■	
Explains purpose, seeks consent	■	■	
Uses open and closed questions	■	■	
Elicits relevant history (presenting, past, Family		■	
Clarifies patient concerns/expectations	■	■	
Clinical Examination			
Washes hands / infection control	■	■	
Explains procedure to patient	■	■	
Performs exam systematically	■	■	
Uses instruments correctly	■	■	
Identifies key findings	■	■	
Clinical Reasoning			
Interprets findings accurately	■	■	
Suggests differential diagnoses	■	■	
Recommends appropriate investigations	■	■	
Proposes initial management plan	■	■	
Communication Skills			
Establishes rapport, maintains eye contact	■	■	
Uses clear, empathetic language	■	■	
Checks patient understanding	■	■	
Provides health education/counseling	■	■	
Professionalism			
Maintains patient dignity & confidentiality	■	■	
Respects patient’s cultural/social backgroun	■	■	
Demonstrates confidence without arrogance	■	■	
Works within ethical boundaries	■	■	

Criteria	Achieved	Not Achieved	Remarks
Station Setup			
Station instructions clear & concise	■	■	
Required equipment/materials available		■	
Adequate time allotted for task	■	■	
Standardized patient/simulator prepared	■	■	
Answer sheet/marking scheme ready			
Student Performance - Knowledge	■		
Demonstrates understanding of concept/proc	■	■	
Answers station-specific questions correctly			
Student Performance - Skills & Technique			
Performs steps in logical sequence	■	■	
Handles instruments/equipment correctly	■	■	
Maintains aseptic/standard precautions	■	■	
Completes task within allocated time			
Student Performance - Communication			
Explains procedure to patient/supervisor	■	■	
Uses appropriate medical terminology	■	■	
Seeks consent where required			
Student Performance - Professionalism			
Maintains patient respect & privacy	■	■	
Demonstrates confidence & ethical behavior			
Assessment & Scoring			
Structured checklist/marking scheme used	■	■	
Marks allocated for each step	■	■	
Negative marking is avoided unless justified	■	■	
Examiner consistency was ensured across students			
Logistics & Examiner Role			
Examiner briefed & calibrated before OSPE	■	■	
No coaching/hints given during the station	■	■	
Feedback documented for student performance	■	■	