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**ALL INDIA INSTITUTE OF MEDICAL SCIENCES MADURAI,
TAMILNADU**

Undergraduate MBBS Course Curriculum

2025

The document has been updated by the Academic Committee

Revised Version:

This information has been updated from the previous document, “Undergraduate MBBS Course Curriculum 2023-24”, which covered Phase I and Phase II subjects only. The revisions are based on a series of academic committee meetings with the Heads of Departments (HODs) from all three phases and from the suggestions of Board of studies and competent authority. This updated document supersedes the previous version.

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Sl. No.	Contents	Page number
1.	Introduction and General Considerations of MBBS (UG) Curriculum	1
2.	Vision, Mission & Goals of undergraduate course (MBBS)	2
3.	MBBS Course: Duration, Phases, New Elements, Subjects and Assessment	5
4	Anatomy	22
5	Biochemistry	60
6	Physiology	95
7	Forensic Medicine & Toxicology	151
8	Microbiology	187
9	Pathology	228
10	Pharmacology	281
11	Community and Family Medicine	411
12	General Medicine	485
13	General Surgery	541
14	Paediatrics	597
15	Dermatology	669
16	Psychiatry	685
17	Otorhinolaryngology (ENT)	730
18	Ophthalmology	762
19	Orthopaedics	789
20	Obstetrics and Gynaecology	814

1. INTRODUCTION AND GENERAL CONSIDERATIONS OF MBBS (UG) CURRICULUM

- 1.1 Graduate medical curriculum is oriented towards training students to undertake responsibilities of a physician of first contact who is capable of looking after the preventive, promotive, curative and rehabilitative aspect of medicine.
- 1.2 The training would be broad based and flexible, aiming to provide an educational experience of the essentials required for health care in our country as well as be of such quality so as to be able to meet internationally acceptable standards.
- 1.3 The educational experience would emphasize health, wellness and community orientation.
- 1.4 Enough experiences will be provided for self-learning. Methods and techniques that would ensure this process would become a part of teaching-learning process.
- 1.5 Adequate emphasis would be placed on cultivating logical and scientific habits of thought, clarity of expression and independence of judgment, as well as the ability to collect and analyze information and correlate them. Every attempt would be made to encourage students to participate in small group discussions and seminars, to enable them to develop personality, character, expression of ideas and other characteristics which are necessary for a medical graduate to function either in solo practice or as a team leader.
- 1.6 Faculty members shall avail of modern educational technology while teaching the students and in order to attain this objective. The Medical Education Unit shall organize CMEs and Workshops for faculty development and provide learning experiences and training to the teachers.
- 1.7 To derive maximum advantage out of this revised curriculum, the vacation period to students in one calendar year shall not exceed one month, during the 4 ½ years course.
- 1.8 Students will be trained to be a:
 - Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
 - Leader and member of the health care team and system with capabilities to collect, analyze and synthesize health data.
 - Communicator with patients, families, colleagues and community.
 - Lifelong learner committed to continuous improvement of skills and knowledge.
 - Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community, and the profession.

2. VISION, MISSION & GOALS OF UNDERGRADUATE COURSE (MBBS)

Vision

To be a globally recognized leader in healthcare, medical education, and research, committed to delivering compassionate care, driving medical innovation, and empowering the next generation of healthcare professionals to transform health outcomes in India and beyond.

Mission

AIIMS Madurai is dedicated to:

1. Providing equitable, patient-centred healthcare that adheres to the highest international standards.
 2. Educating and inspiring healthcare professionals with a focus on ethical practices, leadership, and lifelong learning.
 3. Conducting pioneering research that drives medical advancements, fosters innovation, improves public health, and influences global healthcare practices.
 4. Building strategic partnerships globally to enhance knowledge exchange, promote medical innovation, and facilitate collaborative learning.
 5. Serving as a catalyst for community health, addressing regional health disparities, and promoting sustainable healthcare solutions for underserved populations.
 6. Expanding AIIMS Madurai's influence globally by sharing innovations, best practices, and educational resources to improve healthcare outcomes worldwide.
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Strategic Goals:

The institutional goals are prepared in line with the national goals.

National Goals:

At the end of the undergraduate program, a medical graduate should:

1. Recognize "health for all" as a fundamental right and contribute to this goal through medical training.
2. Understand and implement national health policies.
3. Practice holistic medicine, encompassing promotive, preventive, curative, and rehabilitative aspects.
4. Cultivate a scientific temper and promote healthy living.
5. Become an exemplary citizen, observing medical ethics and fulfilling social and professional obligations.

Institutional Goals:

Aligned with the national goals, AIIMS Madurai aims to produce medical graduates who:

1. Diagnose and manage common health issues with clinical skills grounded in history-taking, physical examination, and relevant investigations.
2. Practice preventive, promotive, curative, palliative, and rehabilitative medicine.
3. Understand therapeutic modalities, essential drug administration, and their side effects.
4. Appreciate socio-psychological, cultural, economic, and environmental factors affecting health.

5. Commit to lifelong learning, seeking further expertise and research opportunities.
6. Familiarize themselves with national health programs and practical aspects of healthcare delivery.
7. Acquire basic management skills relevant to healthcare settings.
8. Identify and address community health problems through collaborative measures.
9. Communicate effectively and work proficiently within healthcare teams.
10. Develop personal characteristics necessary for professional life, including integrity, responsibility, and empathy.

Goals for the Learner:

To effectively fulfil the roles of a medical graduate, students must be able to function in the following roles:

1. **Clinician:** Provide compassionate, holistic care across the spectrum of preventive, promotive, curative, and palliative medicine.
2. **Communicator:** Engage effectively with patients, families, colleagues, and the community.
3. **Leader and Team Member:** Collaborate effectively within healthcare teams and lead initiatives.
4. **Lifelong Learner:** Continuously improve knowledge and skills.
5. **Professional:** Uphold high standards of ethics, responsiveness, and accountability.
6. **Critical Thinker:** Apply problem-solving skills in clinical practice.
7. **Researcher:** Conduct and interpret research to enhance patient care.

Competency-Based Training Program:

A competency-based approach is essential for preparing graduates to meet the demands of the medical profession. By graduation, students should demonstrate the following competencies:

1. **Knowledge:** Master normal and abnormal human structure, function, and development across various perspectives.
2. **Ethics:** Understand the medico-legal, societal, and ethical principles influencing healthcare.
3. **Health Policy:** Be familiar with national and regional healthcare policies and their impact on healthcare delivery.
4. **Patient History:** Elicit and record comprehensive and relevant patient histories.
5. **Examination:** Perform thorough physical examinations relevant to disease identification and health promotion.
6. **Clinical Reasoning:** Develop individualized management plans using effective clinical problem-solving skills.
7. **Record Keeping:** Maintain accurate, clear patient records in compliance with legal standards.
8. **Diagnostic Skills:** Choose and interpret diagnostic tests based on scientific validity and clinical context.
9. **Therapeutic Skills:** Prescribe and administer appropriate therapies using evidence-based principles.

10. **Continuum of Care:** Provide ongoing care that addresses chronicity and disability and refers patients when necessary.
11. **Research Literacy:** Apply research findings to clinical practice.
12. **Teamwork:** Work effectively within inter-professional teams.
13. **Leadership:** Lead healthcare teams to maximize their effectiveness.
14. **Healthcare Systems:** Utilize healthcare systems efficiently, adhering to national priorities and policies.
15. **Communication:** Foster shared decision-making and patient-centred care through effective communication.
16. **Lifelong Learning:** Engage in continuous learning and application of new knowledge.
17. **Professionalism:** Uphold professionalism and ethical standards in all aspects of medical practice.

3. MBBS COURSE: DURATION, PHASES, NEW ELEMENTS, TEACHING AND ASSESSMENTS

Duration of the Undergraduate medical course years

The total duration of undergraduate MBBS course will be 5.5 years including Internship (4.5 + 1 Year = Total 5.5 Years)

Phases: Subjects covered during different Phases of MBBS

Phases	Semester	Subjects	Duration
Phase I	First & Second semester	Anatomy, Physiology, Biochemistry	1 Year
Phase II	Third, Fourth & Fifth semester	Microbiology, Pathology, Pharmacology, Forensic Medicine	1 ½ Years
Phase III	Sixth-Nineth semester	#General Medicine including Dermatology and Psychiatry	2 Years
		#General Surgery including ENT, Ophthalmology and Orthopaedics	
		#Obstetrics and Gynaecology	
		#Paediatrics	
		*Community and Family Medicine	

*The subject will be covered from Phase I and have professional exam at the end of Phase III.

The subjects will be covered from Phase II and have professional exam at the end of Phase III

New Elements introduced

1. Foundation Course
2. Regional Language Classes
3. Horizontal and vertical integration of systems and topics
4. Early clinical exposure
5. Early community exposure
6. Student Logbook for Clinical Postings (History taking and Patient safety protocols)
7. Student Portfolios based assessment
8. E-Learning
9. Skill based learning (simulated, virtual, AI based)
10. Community educational tours and field trips
11. Research: Participation in national student research projects (e.g., ICMR STS Program)
12. Course exit survey/Feedback after each Professional exam and Internship

Assessment:**Minimum criteria for qualifying to appear in professional examinations.****1. Attendance:**

- a. Candidates must have 75% attendance in theory and 80% attendance in practical/ clinicals for each subject separately to be eligible to appear in the professional /supplementary examinations in that subject. This includes attendance in non-lecture teaching activities such as seminars, group discussions, tutorials, demonstrations, practicals, hospital postings, and bedside clinics. AETCOM modules and small group discussion (clinical subjects) attendance will be counted under practical attendance.
- b. A 3% relaxation in attendance may be considered in special cases depending on the competent authority's discretion on a case-to-case basis, provided the candidate has passed his/her internal examination.
- c. Attendance eligibility will be calculated up to (including) the Pre-Professional Examination hours.
- d. If there is shortage of attendance in one or more subject(s), he/ she will be not be able to attend the professional examination for that particular subject(s) and candidates will be given chances to improve their attendance as below.
- e. Candidates short of attendance will be given chance to improve their attendance by attending compensatory classes after the Pre-Professional Examination before the preparation of the eligibility list for the respective Professional Examination. If the candidate attendance eligibility is fulfilled, the student will be allowed to write the Professional examination.
- f. Candidates unable to make up their attendance shortage before the eligibility list is prepared for professional exam, can continue to attend compensatory classes to overcome their attendance shortage for the required subjects before the preparation of the eligibility list for the respective Supplementary exam. If the candidate attendance eligibility is fulfilled, the student will be allowed to write the Supplementary examination. If the candidate is not eligible even after compensatory classes, the student will be detained for that particular subject(s).
- g. The compensatory classes will be as per respective department regular teaching schedule/ time table only. The number of hours a candidate can compensate depend upon the number of Teaching hours allotted to that subject in the teaching schedule/timetable during the above-mentioned days only. Example: If anatomy has one

session of lecture per day. Then for one week, 6 working days, only 6 sessions can be considered for compensation in theory attendance. This is applicable for all compensatory class before professional or supplementary exam.

- h. Attendance will be counted based on hours of teaching in each subject.
- i. Attendance in theory and practical classes/ ward postings is considered separately; missing attendance in one cannot be compensated by attending the other. Any absence must be made up by attending the respective class sessions.
- j. First-Phase Candidates: First-Phase candidates unable to make up their attendance for supplementary exam must attend classes in the respective subject with the next academic batch. Upon making up the attendance and receiving clearance from the Dean (Academics), they will be permitted to write professional exam with their junior batch for that subject. However, candidates who wish to attend the classes even if their attendance shortage is overcome can do so after applying for written permission to Dean academics routed through corresponding head of the departments.
- k. Second-Phase Candidates: Second-phase candidates unable to make up their attendance for supplementary exam must attend classes with the next academic batch for the respective subject. Upon making up the attendance they will be permitted to write the Phase II Professional Examination along with the next academic batch. They must pass the Professional Examination (2nd Phase professional exam) in which they were short of attendance before appearing for the next Phase Professional Examination (3rd Phase professional exam) with their batch.
- l. Third phase candidates: Third-phase candidates unable to make up their attendance for supplementary exam must attend classes with the next academic batch for the respective subject. Upon making up the attendance they will be permitted to write professional exam along with the next academic batch for that subject.
- m. Attendance details will be displayed by each department every three months, and for clinical postings, attendance will be displayed at the end of the scheduled posting. The Dean Academics will be informed, and a list of candidates with attendance shortages will be published on respective noticeboards every three months.

2. Formative Assessment

- a. Marks for passing examination: Students must secure at least 50% of total marks to pass in examination conducted in any subject (theory and practical separately).

b. Internal Assessment (IA) weightage Policy

Internal Assessment Pattern: Notified Theory and Practical Tests (60% of Internal Assessment Marks) + Pre-Professional Examination (40% of Internal Assessment Marks)

- (i) 40% of the internal assessment marks will be derived from the pre-professional examination, covering both theory and practical components. Attendance for the pre-professional examination is compulsory. (And it is not included in the n-1 calculation.) In theory examination, student must secure at least 40% in both paper I and II. However, the aggregate of Paper I and II should be at least 50% for passing in that subject.
- (ii) The remaining 60% of the internal assessment marks will be calculated based on notified theory and practical tests. The 60% marks will be calculated using the (n-1) rule, where n is the total number of notified tests conducted. Notified tests have to be conducted at least one per semester if the subject is taken within that semester.

c. (n-1) Calculation Rules:

- (i) Standard (n-1) Rule: The lowest-scoring test among the notified tests will be omitted, and the average marks from the remaining tests will be used to calculate the 60%.
- (ii) Absence for One Test: If a student is unable to attend one notified test due to medical, personal, or academic reasons, the absence will be covered under the (n-1) rule.
- (iii) Absence for a Second Test: If a student is unable to attend a second notified test (in addition to the first absence) due to valid reasons, and prior permission is obtained from the Dean (Academics) routed through proper channel, the 60% marks will be calculated based on the remaining tests. If permission is not obtained, the missed test will be awarded zero marks, and the 60% will be calculated accordingly.
- (iv) Absence Beyond Two Tests: If a student is unable to attend more than two notified tests due to medical, personal, or academic reasons, the marks for the additional missed tests will be considered zero, and the 60% marks will be calculated accordingly.

d. Candidates who fail to qualify in the internal assessment (IA) exam in one or more

subjects will not be eligible to appear for the professional examination. However, they will be given an opportunity to improve their IA through extraordinary notified test conducted by the respective departments.

- e. Extraordinary notified test: Extraordinary notified test will be conducted by the departments after pre-professional exam if the candidates have not scored the minimum IA marks to be eligible to appear for professional examination. This will be scheduled by the respective departments, before the final eligibility list is prepared, which is 10 days before the professional exam. The improvement test pattern is similar to notified test patterns and marks. Marks from the extraordinary notified test can be used to replace the mark of one of the notified tests in which the candidate has scored less marks and the 60% IA marks from notified test will be calculated again and total IA marks will be revised.

f. Improvement Exams and Supplementary Examination Policy

- (i) Once Professional exam is completed for eligible students, Improvement exams will be conducted for ineligible students (based on IA marks) before the preparation of eligibility list for supplementary exam
- (ii) The candidate's previous total IA marks will now account for 60% (both notified test marks and preprofessional marks combined) and the improvement exam marks will account for the remaining 40%. The combined score is considered as new IA mark for that candidate.
- (iii) If the combined score after improvement examination is 50% or higher, the candidate will be eligible to appear for the supplementary examination, which will be considered as the first attempt in a particular subject(s).
- (iv) If the candidate is ineligible even after the improvement exam, candidate will be given opportunity to write the professional exam along with the next academic batch, provided the candidate is able to improve his IA to become eligible for the professional exam. The candidate can keep attending the notified tests and or preprofessional exams along with the next academic batch till the candidate gets enough marks to become eligible.
- (v) Candidates who fail in theory and/or practical in one or more subjects in the regular final Professional examinations can appear in the supplementary Professional examination.
- (vi) Candidates who failed in the supplementary exam or unable to attend can appear

for the professional examination for that phase along with the next academic batch.

Previous phase attendance and IA marks for those candidates will be carried over.

- g. Pre professional examination will be conducted as per Professional exam pattern.
- h. Record Book for pre- and para-clinical subjects
 - 1. Day to day records should be given importance during internal assessment. The marks for the record book submitted are to be included in the practical internal assessment for pre-clinical subjects.
 - 2. For para-clinical subjects, the marks for the record book submitted are to be included in the internal assessment and professional examination.
- i. Appearing for supplementary examination without appearing for professional examination would be reflected in Mark sheet.

Distribution of marks in the various Professional Examinations for phase I and II

Subject	Papers	Theory Marks			Practical and Viva-voce Marks			Total
		IA	Professional (50%)	Combined	IA (50%)	Professional (50%)	Combined	
Phase I								
Anatomy	2 papers	100	200	200	100	100	100	300
Physiology	2 papers	100	200	200	100	100	100	300
Biochemistry	2 papers	100	200	200	100	100	100	300
Phase II								
Pharmacology	2 papers	100	200	200	100	100	100	300
Pathology	2 papers	100	200	200	100	100	100	300
Microbiology	2 papers	100	200	200	100	100	100	300
FMT	1 paper	100	100	100	100	100	100	200

Phase III

Distribution of Marks for III MBBS

Subject	Paper s	Theory Marks		Practical & Viva Voce		Marks
		Internal Assessment	Professional Examination	Internal Assessment	Professional Examination	
General Medicine	2	200 (150+25+25)	200 (150+25+25)	200 (160+20+20)	200 (160+20+20)	800
Dermatology		25	25	20	20	
Psychiatry		25	25	20	20	
General Surgery	2	200 (125+25+25+25)	200 (125+25+25+25)	200 (125+25+25+25)	200 (125+25+25+25)	800
Orthopaedics		25	25	25	25	
ENT		25	25	25	25	
Ophthalmology		25	25	25	25	
OBG	2	200	200	200	200	800
Paediatrics	1	100	100	100	100	400
Community & Family Medicine	2	200	200	200	200	800
	Total	900	900	900	900	3600

Pre professional / Professional examination: Duration 3 hours each paper

S. No.	Question type	Section A MCQs (1 mark)	Section B		Section C		Total
	Exams		LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper I	20x1	1x10	6x5	1x10	6x5	100
2	Paper II	20x1	1x10	6x5	1x10	6x5	100
Grand Total							200

Section – A: Multiple choice questions are single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 20 minutes

Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

*In case of Forensic medicine & toxicology and pediatrics, there is only one paper.

In case of General Medicine and General Surgery, the mark distribution is as shown below.

S. No.	Subject	Section A MCQs (1 mark)	Section B		Section C		Total
			LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper 1	20x1	1x10	6x5	1x10	6x5	100
2	Paper 2	20x1		8x5		8x5	100
Grand Total							200

Passing criteria:

Minimum 50% in theory (if a subject has more than one paper, minimum 40% in each paper should be secured with an aggregate of minimum 50%)

Minimum 50% in practical/clinical including viva.

For phase I and Phase II practical

Practical		Marks *
Pre professional / Final professional Examination	Practical	80
	Viva	20
Total		100

Eligibility for Examination

Attendance	75 % for theory 80 % for practical
Internal Assessment marks	50%

Marks qualifying for pass:

- 50% in Theory (Minimum 40% in both Paper I & II; However, aggregate of both papers should be minimum 50%)
- 50% in Practical including Viva-Voce
- 50% in Internal Assessment
- 50% in Total Aggregate

Professional Examinations (Summative Assessment):

1.1. Number and timing of examinations

1.1.1. Professional examinations will be held at the end of each phase. The Institute shall conduct not more than two Professional examinations for a batch in an academic year, a regular Professional and a supplementary Professional examination in each subject. The supplementary Professional examinations will be held within 6 weeks after publication of the result of the regular examination.

1.2. Practical Examinations shall be jointly conducted by a panel of two internal and two external examiners duly appointed by the Dean of Examinations with the approval of competent authority.

1.3. Students must secure at least 50% of total marks to pass in any examination conducted in any subject (theory and practical separately). In theory examination, student must secure at least 40% in both paper I and II. However, the aggregate of Paper I and II should be at least 50% for passing in that subject.

1.4. Question pattern of theory Professional Examinations:

1.4.1. Each theory paper will have three sections: Sections A (MCQ), B and C. Sections B and C will carry one Long Answer Question and six short answer questions

1.4.2. There will be no choice of questions.

1.4.3. Maximum marks of each paper will be 100.

1.4.4. The marks scored in Professional examination will be proportionately included in the calculation of final aggregate

1.5. Number of attempts and Training Period:

1.5.1. The academic program of the MBBS course must be completed within 9 years from the date of joining (excluding the compulsory internship period). Maximum permissible duration for each phase shall be four years and a maximum of four attempts (including the regular and supplementary Professional examinations) in any subject will be permitted.

1.5.2. After becoming eligible for an examination, if a student does not appear in both theory and practical final examination, it will NOT be considered as an attempt for the purpose of calculation of maximum number of attempts in a subject.

1.5.3. If a student appears for theory examinations in the Professional Examination but does not appear for Practical Examination or vice-versa, his/her theory or practical appearance shall be counted as an attempt. In the next attempt, the student will have

to appear for both Theory and Practical Examinations. Mere submission of application form for examination will not be considered as an attempt.

1.5.4. First-phase students: Passing all first phase subjects is compulsory before proceeding to the second phase.

1.5.5. Second-phase students: Passing the professional exam of the second phase is mandatory to become eligible to write the professional exam in the third phase.

1.5.6. A student who fails in theory and/or practical of one or more subjects in the regular final Professional examinations at the end of each phase can appear in the supplementary Professional examination (to be held within 6-8 weeks of announcement of the regular Professional examination results) in those subjects.

1.5.7. If he/she passes these subjects in the supplementary Professional examination, he/she should join the regular batch within 7 days of declaration of supplementary Professional examination results or when classes commence, whichever is earlier. Attendance calculation for students who join after passing supplementary Professional examination will begin from their date of joining of that phase.

1.5.8. Students who fail in theory and/or practical in one or more subjects in the supplementary examination and those who do not appear in the supplementary examination should join classes with the junior batch within 7 days of declaration of supplementary examination results or when classes, whichever is earlier. Their attendance is calculated as described in the attendance eligibility section.

1.5.9. A total of four attempts in any subject is allowed. If a student fails even in the 4th attempt, no further chances will be given, and his/her name will be terminated from the MBBS course of AIIMS, Madurai.

1.5.10. Grace marks up to a maximum of five may be awarded, to the total marks obtained in Paper I and Paper II theory examinations together, only under the following conditions:

- A committee of senior faculties along with the HOD of the concerned subject under the guidance of the competent authority will decide to give the grace marks to student who has written all the subjects and failed in only one subject of that professional examination. Grace marks are not awarded to student who fails in more than one subject in that professional examination.
- Grace marks are only for Theory and not for Practical/Clinical examinations.

- g. All examiners shall be appointed by the Controller of Examination from the panel of examiners sent by individual Head of Department with the approval of the Director / competent authority.
- h. Honorary/Emeritus/Visiting Professors or part time/ad-hoc teachers are not eligible to be appointed as internal examiners.
- i. The internal examiner in a subject shall not accept external examiner ship for a college from which external subject expert has been appointed in the same year.

Exam application form and Fee:

The circular for collecting the application form from the exam cell will be given around 3 weeks in advance of the commencement of examination or as published in the schedule.

A photocopy of the mark sheet of the last examination (for first professional supplementary, second and final professional examination) and a copy of the identity card issued by the institute should be submitted along with the filled application form.

MBBS Professional examination fee:

The examination fee will be intimated to the students ahead of examinations as per the Institutional regulations

General instructions to the Candidates for Theory Exam:

- Candidates should write his/her registration number legibly on the title page of Answer booklet and not to write anywhere else.
- Candidates may also be informed that violation of this rule will attract disciplinary action.
- Candidates are not allowed to use books of any kind; Chief Supervisor is to warn the candidates at the commencement of each examination.
- Candidates are not allowed to wear an Apron / Lab coat for writing Theory examination.
- All books, notebooks, Manuscripts, etc., cell phone & other electronic gadgets brought by candidates shall be placed outside the examination hall in a separate room.

Entering and leaving hall:

- Candidates should arrive at the examination hall at least 45 (Forty-five) minutes prior to the commencement of the examination.
- Candidates shall occupy their seats at least 30 (Thirty) minutes prior to the commencement

of the examination and they are not allowed to leave their seats under any pretext during examination hours.

- No candidate desirous of writing the examination shall be permitted to enter the hall after the expiry of 30 minutes from the commencement of examinations.
- Candidates are not allowed to leave the examination hall until the last 30 minutes.

Rules for supplementary examination:

- 1st Professional students – Those candidates who are unsuccessful in 1st Professional examination will be permitted to appear in the supplementary examination in the concerned subject, which will be held after 6-8 weeks of regular professional exams.
- A student, who has failed both; i.e. professional and supplementary examination, will have to attend classes with the junior batch and qualify as per rules
- 2nd Professional students - Those candidates who are unsuccessful in 2nd Professional examination will be permitted to appear in the supplementary examination in the concerned subject, which will be held after 6-8 weeks of regular professional exams.
- 3rd Professional students - Those candidates who are unsuccessful in 3rd Professional examination will be permitted to appear in the supplementary examination in the concerned subject, which will be held after 6-8 weeks of regular professional exams.
- Appearance for a supplementary examination will be counted as an attempt
- Candidates who could not qualify all the subjects of a particular phase but passed one or more individual subjects (both theory and practicals together) need not appear for the passed subject(s) again in order to complete that particular phase.
- The candidates have to pass in all the subjects of a particular professional examination, in order to be allowed to appear in the next professional examination
- There is no provision for revaluation of answer papers. However, re-totaling is allowed in the failed subjects after paying requisite fee (non-refundable) in account section.
- Medical Grounds for Absence:
 - a. Absences due to medical reasons will be reviewed by the Medical Board of AIIMS Madurai.
 - b. A medical certificate from AIIMS Madurai Medical board must be submitted to the Dean (Academics) and the Head of the concerned department. If treated elsewhere, the medical certificate needs to be approved by the medical board of AIIMS Madurai.
 - c. While calculating attendance eligibility to write professional exam, a maximum concession of up to 5% could be given based on medical ground provided the candidate has submitted medical certificate to Dean (Academics) & approved by medical board of

AIIMS Madurai.

- d. If the candidate has shortage of attendance even after 5% concession the candidate should attend the compensatory classes as described above"

Punishment for malpractice:

S.no	Crime	Punishment
1	Electronic gadget found in exam hall (including smart watch)	Student should be debarred from subsequent exam of same subject for 1 year till next annual/ supplementary exam, whichever is earlier.
2	Printed material / including (any sort of) writing on body part, question paper	Student should be debarred from subsequent exam of same subject for 1 year till next annual/supplementary exam, whichever is earlier.
3	Transfer of answer sheet/ copies	Student should be debarred from subsequent exam of same subject for 1 year till next annual/ supplementary exam, whichever is earlier.
4	Talking inside examination hall	10% deduction of marks Invigilator will inform and endorse in the answer sheet. Controller of examination and HOD concerned should be informed.

In case of any unforeseen situation not covered under these guidelines the decision of the Director, AIIMS, Madurai shall be final.

DEPARTMENT OF ANATOMY

Anatomy is the science of structure of the body and forms the basis for understanding function. The word Anatomy (derived from Greek word *anatomein*) means to cut apart or dissect.

The subject of Anatomy can be studied under the following subdivisions:

1. Gross Anatomy - Study of the structure and interrelation of the parts of the body by dissection
Regional or Topographic anatomy - Study of the body region wise
Surface anatomy - Study of arrangement of internal structures by projection on the surface of the body
Sectional anatomy - Study of relationship of structures as seen in sections cut in different planes.
Radiographic anatomy - Study of structures of the body using radiographic technique.
2. Microscopic Anatomy – Histology
3. Embryology or Developmental Anatomy
4. Neuroanatomy

Goals And Objectives:

Student should be able to

- Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of various structures and organs in the body.
- Comprehend the basic structure and connections between various parts of the central nervous system so as to analyse the integrative and regulative functions and should be able to locate the site of lesions according to the deficits encountered.
- Recognize and state the micro-anatomical features of various tissues and organs of the human body with functional correlation as a prerequisite to understanding the altered state in disease processes.
- State the development of various organs of the human body, differentiate abnormal development and interpret the formation of various congenital anomalies.

- State the features of normal postnatal growth and development and recognize any variation.
- State the basic principles of medical genetics and understand the basis of genetic disorders.
- Identify the radiological features of normal human body structures in routine radiological investigations.
- Project the outline of the internal structures on the surface of the body.

Activities:

- Large and Small Group Teaching, Self-directed learning, Integrated teaching, Problem-Based learning, with conventional cadaver and **VIRTUAL dissection methods** using digital sources- **Visible Body App** (App based teaching)
- Practical classes on surface anatomy or living anatomy, dissection and histology.
- Demonstration of bones, charts, embryology models, radiology plates and museum specimens
- Use of multimedia for teaching
- Student participation in the form of seminar presentation, model making, giving assignments and maintaining practical records.
- Formative and Summative assessments in the form of MCQs, Short Answer types, Structured and Modified Essay Questions, Practical and Viva voce.

General Principles of Teaching Learning Activities:

- One third of the total teaching time to consist of interactive lectures. At the end of a lecture, feedback on learning of students to be given using MCQs.
- Two-thirds of the total teaching time to consist of practicals/OSPEs, small group discussions (including discussions on clinical problems and case studies) and oral presentations with AV aids by students (E.g., for theory content assigned for SDL).
- Adult learning principles will be followed in teaching and student-centred learning strategy will be used.
- Anonymous constructive feedback from students on teaching, without naming and blaming anyone, will be obtained after lectures and other teaching sessions using paper based or online method.

General Instruction for Laboratories:

- Students must have 75% attendance in theory and 75% in practical to be eligible for appearing exams. Students must attend the theory and practical classes regularly and absence should be reported to the Head of the Department with the reason.
- Students must give respect to their teachers and their colleagues.
- To be **attired decently** (with the hair combed/tied up neatly and nails cut) befitting the decorum of a medical professional.
- To **wear your laboratory coat** when you enter the dissection hall.
- To keep your bags in the safety lockers provided.
- To bring your own dissection kit.
- To wear covered formal shoes. Never wear sandals or slippers to the dissection hall, which will not protect your feet from injury in case of any accident.
- Not to eat or drink inside the laboratory.
- For girls to plait their hair and place it inside their apron.
- Not to wear rings, bangles or any other valuables.
- To trim the nails regularly.
- Not to shift from the table to which they are allotted.
- To avoid inhaling preservative solution for a prolonged period. If you feel in need of fresh air, ask permission from concerned faculty member to leave the laboratory for a few minutes.
- To report all accidents or incidents immediately to the staff members for assessment.
- To keep your **mobile phones in switched off or silent mode** and keep it inside their respective lockers.
- To **avoid photography** of any kind in the departmental premises viz dissection hall, museum, demonstration room, lecture hall and microanatomy lab.
- Students may use gloves, however, is not mandatory; Optional.
- Bones can be issued on need basis, but it has to be returned back to the dissection hall technician at the end of each session.
- Not to litter anywhere in the department premises. Special care must be taken to dispose off used gloves, which must be put in the bio waste container meant for it.
- To carry **Cunningham's Manual or Grant's Dissector** of Practical Anatomy
- Always use blunt forceps and probes to handle the prosected specimens.

Students must understand that they are learning from human cadavers acquired from people who they have generously donated their bodies for the benefit of science and society. Faculty members have dissected the specimens meticulously to allow the students, to see anatomical structures in fine detail. Students must do the dissection with caution and under supervision of staff members. It is important for all students learning Anatomy to have and show utmost respect for the specimens at all times, in the Dissection hall. Great care should be exercised when handling specimens, in order to preserve their delicate structure.

At The End of Each Laboratory Sessions:

- Wash your hands and instruments thoroughly with the soap provided and dry your hands with the towel.
- Remove your laboratory coat when you leave the dissection hall.

Instructions To Be Followed In The Microanatomy Practical Laboratory:

It is compulsory

- To wear white apron inside the laboratory.
- To draw the histology diagrams in the histology journal after seeing the slides.
- Journal must be neatly covered with transparent sheet.
- If any doubt regarding the slide the student must clarify with the concerned faculty allotted.
- To complete the previous assignment and bring the Microanatomy Journal.
- To bring Atlas of Histology.
- To Carry Violet (Hematoxylin) and lilac (eosin) pencils for drawing histology diagrams.
- To Carry a magnifying glass (under no circumstances should the eyepiece be removed from the focal tube of the microscope).
- To ensure that the cover slip is facing the objectives before turning to the high power.
- To revert to low power before moving to the next microscope.

Anatomy Curriculum

General anatomy -15 hours. Lectures – 13 hours, Demonstration/Practical – 2 hours						
S. No	Teaching Learning	Teaching/ Learning Method	Time	Topic	Domain K/S/A/C	Method of Assessment
1.	Lecture	Lecture/ Flipped Class Room	13 hours	Introduction to Anatomy Skeletal system Joints Muscular system Cardiovascular system Lymphatic system Nervous system Integumentary system ImagingAnatomy	K/S	Written/ OS PE
2.	Demonstration	Demonstration /Small group teaching/SDL	2 hours	Joint movements demonstration	K/S/A/C	OSPE/ Viva voce/ Spotters

Upper Limb: 80 hrs						
S. No	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment
1.	Upper Limb Theory	Lecture/ flipped classroom/ Case based learning	20 hrs	Introduction & development of locomotor system, pectoral region Axilla Shoulder joint complex	K/S	Written/ OSPE/ Viva voce

	Exposure	Biochemistry		Neuromuscular junction		
		Vertical Orthopaedics Anaesthesia		Fractures & dislocation in upper limb Nerve block	K/S/A/C	

List of essential laboratory skills for independent performance

Surface Anatomy: Students should be able to mark the following structures.

SURFACE ANATOMY-UPPER LIMB		
Axillary artery	Deep palmar arch	Axillary nerve
Brachial artery	Flexor retinaculum	Radial nerve
Radial artery	Extensor retinaculum	Median nerve
Ulnar artery	Median cubital vein	Ulnar nerve
Superficial palmar arch	Cephalic vein	Anatomical snuff box

Lower Limb: 80 hrs						
S. No	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment
1.	Lower Limb Theory	Lecture/ flipped classroom/ Case based learning	22 hrs	• Introduction, femoral triangle, adductor canal • Hip joint • Popliteal fossa • Knee joint • Ankle joint, joints of	K/S	Written/ OSPE/ Viva voce

				foot • Arches of foot • Venous drainage of lower limb • Gait		
2.	Lower limb SDL	Self-directed learning/ Seminar	4 hrs	• Femoral canal, sheath • Saphenous opening • Tibiofemoral joints	K/S/A/C	Written/ Viva voce
3.	Lower Limb Practical	Dissection/ demonstration/ discussion	8 hrs	• Gross • Front of thigh • Adductor compartment • Gluteal region • Posterior compartment of thigh • Popliteal fossa • Anterior & lateral compartment of leg	K/S/A/C	Viva voce/ OSPE

				and dorsum of foot • Posterior compartment of leg & retinacula around ankle • Sole • Surface anatomy & radiology • Osteology • Hip bone • Femur • Tibia & fibula • Articulated foot		
4.	Integration/ Early Clinical Exposure	Horizontal: Biochemistry Vertical: Surgery	2 hrs	Minerals, disorders & estimation of minerals. Hernia, varicose vein & ulcer, venous cutdown, femoral angiography	K/S/A/C	
		Orthopaedics		fractures in neck,	K/S/A/C	

		Physiotherapy & rehabilitation		shaft of femur, meniscal tear, arthroscopy, talipes equinovarus Gait disturbances, foot drop, anterior tibial syndrome		

List of essential laboratory skills for independent performance

Surface Anatomy: Students should be able to mark the following structures.

SURFACEANATOMY-LOWERLIMB		
Femoralartery	Sciaticnerve	Greatsaphenousvein
Poplitealartery	Commonperonealnerve	Shortsaphenousvein
Anteriotibialartery	Deepperonealnerve	Femoralvein
Posteriortibialartery	Superficialperonealnerve	Inguinalligament
Dorsalispedisartery	Flexorretinaculum	Saphenousopening

Thorax -55 hours. Lectures – 14 hours, Osteology -3 hours, Dissection- 30 hours, Radiology &Surface Anatomy-2 hours, Integrated Teaching session: 4 hours, SDL-2 hrs						
S . N o	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment
1 .	Lecture	Lecture/ Flipped Class	14 hours	- Intercostal spaces - Ribcage &Mechanics of	K/S	Written/ OSPE

				• respiration • Pleura • Lungs & Bronchopulmonary segments • Pericardium & External surface of heart • Interior of heart • Blood supply & Nerve supply of heart • Superior mediastinum • Posterior mediastinum - I • Posterior mediastinum - II • Joints of Thoracic region • Thoracoabdominal diaphragm • Lymphatics Of Thorax • Applied		

				Anatomy of Thorax		
2	Dissection	Demonstration/ Small group teaching/SDL	30 hours	• Intercostal spaces • Pleura, Pleural cavity • Lungs • Pericardium • Heart (External features) & Blood supply • Heart (Internal features) • Superior mediastinum • Posterior mediastinum (Thoracic duct, Azygos vein, Oesophagus, Sympathetic chain)	K/S/A/C	OSPE/ Viva voce/ Spotters
3	Osteology	Demonstration/ Small group teaching	3 hrs	• Sternum • Rib (Typical & Atypical) • Thoracic vertebrae	K/S/A/C	OSPE/ Viva voce/ Spotters
4	Surface Anatomy/	Demonstration/ Small	2 hrs	• X-Ray (Plain & Contrast)	K/S/A/C	OSPE/ Viva voce/

	Living Anatomy Radiology	group teaching		Studies), • CT Thorax		Spotters
5	Integrated Teaching/ Early Clinical Exposure	Lecture/ Flipped Class Room/ Case Based Learning	4 hrs	DepartmentsMedicine, Surgery,Radiology, Surgical Gastroenterology ENT,Cardiology	K/S/A/C	
6		Self-directed learning/ Seminar	2 hrs		K/S/A/C	

Abdomen, Pelvis & Perineum: 124

Lectures – 28 hours, Osteology -4 hours, Dissection-80 hours, Radiology & Surface Anatomy-4hours, Integrated Teaching session: 4 hours, SDL-4 hrs

S. No	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment
1.	Lecture	Lecture/ Flipped Classroom/ Case Based learning	18 hrs	ABDOMEN • Anterior abdominal wall • Rectus sheath • Inguinal canal • Male external genitalia • Peritoneum-I & II • Stomach • Duodenum • General features	K/S	Written/ OSPE

				of colon, • Caecum and appendix • Liver • Extra hepatic biliary apparatus • Pancreas • Spleen • Portal vein and portocaval anastomosis • Kidney • Ureter and suprarenal gland • Abdominal aorta and Inferior vena cava • Muscles of the Posterior abdominal wall and the lumbosacral plexus		
			10 hr s	• PELVIS & PERINEUM • Sigmoid colon & Rectum, • Anal canal & Ischioanal		Written/ OSPE

				fossa • Uterus, • Fallopian tube & Ovary • Urinary bladder • Prostate • Male & Female Urethra, Seminalvesicle • Pelvic diaphragm and pelvicvessels & Nerves. • Perineum-I & II		
2.	Practicals	Demonstration/ Small group teaching/ SDL	80 hr s	• Inguinal canal • Male external genitalia • Peritoneum-I & II • Stomach • Duodenum • General features of colon, caecum and appendix • Liver • Extra hepatic biliary apparatus • Pancreas • Spleen • Portal vein and	K/S/A/C	OSPE/ Vivavoce/ Spotters

				portocaval anastomosis • Kidney • Ureter and suprarenal gland • Abdominal aorta and Inferior • Venacava • Muscles of the Posterior • abdominal wall and the lumbosacral plexus • Pelvic viscera and perineum • Ischioanal fossa • Sagittal section of male &female pelvis & Demonstration of perineal pouches.		
3.	Osteology	Demonstr ation /Small group teaching	4 hrs	• Pelvis • Lumbar vertebra • Sacrum	K/S/A/C	
4.	Radiology	Demonstr	2 hrs	• Abdomen -	K/S	

		ation/ Small group teaching		plain X-ray, • Intravenous Pyelogram, • Retrograde pyelogram • Endoscopic retrograde cholangiopancreatography (ERCP), • Barium swallow, • Barium follow through, • Barium enema, • X – ray KUB, • Pelvis - Plain X-ray (anteroposterior radiograph), • Hysterosalpingogram, • Normal Spine X-ray (AP and lateral view)		
5.	Surface Anatomy /Living Anatomy	Demonstration /Small group teaching	2 hrs	Pubic crest, pubic tubercle, linea semilunaris, anterior superior iliac spine, planes of the abdomen, regions of abdomen, deep inguinal ring, superficial	K/S/A/C	

				inguinal ring, inguinal canal, Mcburney's point, fundus of gall bladder, stomach, Traube's space, duodenum, Liver, Kidneys, ureters, spleen and termination of spinal cord & spinal subarachnoid space.		
6.	Integrated Teaching	Lecture/ Flipped Class Room/ Case Based Learning	4 hrs	Departments: Medicine, Surgery, Radiology, Surgical Gastroenterology, OBG, Urology, Nephrology	K/S/A/C	Written/ OSPE
7.	SDL		4 hrs			

Head and neck -100 hours. Lectures – 25 hours, Osteology -10 hours, Dissection- 55 hours, Radiology & Surface Anatomy-4 hours, Integrated Teaching session: 4 hours, SDL-2 hrs

S. No	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment
1.	Lecture	Lecture/ Flipped Class Room/ Case Based learning	25 hours	• Scalp • Face • Deep cervical fascia • Posterior triangle of	K/S	Written/ OSPE

				neck • Parotid gland • Anterior triangle of neck • Thyroid gland and subclavian artery • Submandibular region • Temporal fossa, Infratemporal fossa and Otic ganglion • Temporomandibular joint • Orbit and its contents • Eyeball and Lacrimal apparatus • Duramater and Dural venous sinuses • Nasal Septum, Lateral wall of nose and paranasal air sinuses • Parasympathetic ganglion		

				• Tongue • Larynx • Pharynx • Palate • External ear, Tympanic membrane and Auditory tube • Middle ear • Joints of Head and Neck		
2	Dissection	Demonstration /Small group teaching /SDL	55 hours	• Scalp • Face • Parotid region • Posterior triangle • Anterior triangle • Thyroid gland and deep dissection of neck • Submandibular region • Suboccipital region • Infratemporal region • Cranial cavity • Orbit • Pharynx and soft palate	K/S/A/C	OSPE/ Viva voce/ Spotters

				• Nasal cavity • Tongue		
3	Osteology	Demonstration/Small group teaching	10 hrs	• External features of skull • Internal features of skull • Mandible • Cervical vertebra • Fetal skull	K/S/A/C	OSPE/ Viva voce/ Spotters
4	Surface Anatomy/Living Anatomy Radiology	Demonstration/Small group teaching	hrs	• X-Ray (Plain AP view and lateral view) • Carotid angiogram	K/S/A/C	OSPE/ Viva voce/ Spotters
5	Integrated Teaching	Lecture/ Flipped Class Room/ Case Based Learning	4 hrs	Departments: ENT, surgery and ophthalmology	K/S/A/C	
6	SDL		2 hrs			

Neuroanatomy -50 hours. Lectures – 18 hours, Dissection- 28 hours, Integrated Teaching session: 4hours

S. No	Teaching Learning	Teaching/ Learning Method	Time	Sub topic	Domain K/S/A/C	Method of Assessment

1	Lecture	Lecture/ Flipped Class Room/ Case Based learning	18 hours	• Spinal cord • Brainstem • Cerebellum and fourth ventricle • Cerebrum • Thalamus • Lateral ventricles and CSF circulation • Basal Nuclei • Limbic system and reticular formation • Blood supply of brain • Cranial nerves	K/S	Written/ OSPE
2	Dissection	Demonstration /Small group teaching/ SDL	28 hrs	• Meninges & base of brain • Spinal cord • Brainstem • Cerebellum and fourth ventricle • Cerebrum • Lateral ventricle • Thalamus and 3rd ventricle • Basal ganglia • Blood supply of brain	K/S/A/ C	OSPE/ Viva voce / Spotters
3	Integrated Teaching	Lecture/ Flipped Class Room/ Case Based	4 hrs	• Department: • Neurology • Neurosurgery • Radiology • Nuclear Medicine	K/S/A/ C	

		Learning				

Histology: 90 hrs (Theory-30, Practical- 60 hrs)

S. No	Teaching Learning	Method	Time	Topic	Domain K/S/A/C	Method of Assessment
1.	General Histology Theory	Lecture-flippedclass room/ seminar	10 hrs	• Epithelial tissue • Connective tissue • Cartilage • Bone • Muscular tissue • Peripheral Nerve & Autonomic Ganglia • Blood vessels • Lymphoid organs • Skin	K/S	Written / Viva voce
2.	General Histology Practical	Demonstration/ SGD/ SDL	22 hrs	• Microscope, types of microscopes • Structure of cell, cell modifications • Tissue processing • Epithelial tissue • Glands • Connective tissue • Cartilage • Bone • Muscular tissue • Peripheral Nerve &	K/S/A/C	Spotter/ Viva voce, drawing & labelling histology structures in record

				Autonomic Ganglia • Blood vessels • Lymphoid organs • Skin		
3	Systemic Histology Theory	Lecture-flipped classroom/seminar	20 hrs	• Gastrointestinal system • Urinary system • Reproductive system • Respiratory system • Endocrine system • CNS • Special senses	K/S	Written/ Viva voce
4	Systemic Histology Practical	Demonstration/ SGD/ SDL	38 hrs	• Oesophagus • Stomach – Fundus • Stomach – Pylorus • Duodenum • Jejunum • Ileum • Large intestine • Appendix • Liver • Gall bladder • Pancreas • Kidney • Ureter • Urinary bladder • Adrenal gland • Testis • Epididymis • Vas deferens • Seminal vesicle	K/S/A/C	Spotter/ Viva voce, drawing & labelling histology structures in record

				• Prostate • Penis • Ovary • Fallopian tube • Uterus • Epiglottis • Trachea • Lung • Pituitary • Thyroid • Parathyroid • Tongue • Cornea • Retina • Optic nerve • Cochlea • Spinal cord • Medulla • Pons • Midbrain • Cerebrum • Cerebellum		

EMBRYOLOGY: 48						
Lecture: 38 hrs, Practicals-6 hrs, Integrated Teaching session:2 hours, SDL-2 hrs						
S. No	Method	Teaching Learning Method	Time	Topic	Domain K/S/A/C	Method of Assessment

1.	Lecture	Lecture/ (LCD)/Flipped Class Room/ Case Based Learning	12 hrs	• GENERAL • EMBRYOLOGY • Introduction • Molecular Regulation in Embryo • Gametogenesis • First week of Development • Second week (2hrs) • Third week (3 hrs) • Placenta&Foetal membranes • Development of Body cavities • Twinning • Teratogenesis	K/S	Written/ Practicals/ Viva Voce/ OSPE (Response &Perform)
		Lecture/Lecture cum Demonstration (LCD)/ Flipped Class Room/ Case Based Learning	26 hrs	• SYSTEMIC EMBRYOLOGY • Digestive system (4 hrs) • Urogenital system (4 hrs) • Cardiovascular system (4 hrs) • Respiratory system & development of diaphragm (2hrs) • Pharyngeal apparatus, development of face & tongue (4hrs)	K/S	Written/ Practicals/ Viva // OSPE (Response &Perform)

				• Aortic arches - Development of Veins&Foetal circulation • Nervoussystem • Development of endocrine &Organs of special senses • Integumentarysystem • Musculoskeletal system		
2.	Practicals	Demonstration of Models/ Charts/ SDL	6 hrs		K/S/A/ C	OSPE/ Viva voce/ Spotter s
3.	Integrated Teaching	Lecture/ FlippedClass Room/ Case Based Learning	2 hrs	Departments: Radiology/OBG/Pediatrics	K/S/A/C	Written/ Practicals /Viva Voce/ (Response &Perform
4.	SDL		2 hrs			

Genetics -10 hours. Lectures – 8 hours, Demonstration/Practical – 2 hours						
S. No	Teaching Learning	Method	Time	Topic	Domain K/S/A/C	Method of Assessment
1.	Lecture	Lecture/	8	• Introduction to	K/S	Written/

		FlippedClass Room/Case Based Learning	hour s	Medical Genetics • Chromosomes • Chromosomal Disorders • Chromosome at molecular level • Clinical genetics • Diagnosis of genetic diseases • Genetic counselling		OSPE
2.	Demonstrati o n	Demonstration /Small group teaching/SDL	2 hour s	• Demonstration of mitosis and meiosis, Demonstration of Barr body. • Demonstration of normal and abnormal maleand female Karyotype • Demonstration of Pedigree charts for modesof inheritance • Demonstration ofclinical features with thehelp of charts for Downs Syndrome, Turners Syndrome, Klinefelters syndrome, Edwards syndrome, Patau's Syndrome • Roleplay among	K/S/A/ C	OSPE/ Viva voce/ Spotters/ Roleplay

				students in Genetic counselling and Pedigreecharting		

Medical ethics -2 hours. Demonstration/Practical – 2 hours						
S. No	Teaching Learning	Method	Time	Topic	Domain K/S/A/C	Method of Assessment
1	Demonstration	Demonstration / Small group teaching/ SDL	2 hours	- Principles of medical ethics (justice, beneficence, autonomy, non-maleficence, consent) - Respect for cadaver - Cadaver preservation, Body donation - Organ donation	K/S/A/C	OSPE/ Vivavoce/ Spotters

Anatomy Hourly Break Up Region/Division Wise

S. No	Region	Lectures	Tutorials/ Demonstration	Integrated teaching	Practical	Total (hrs)
1.	General Anatomy	13	--	-	2	15
2.	Upper Limb	20	6	2	52	80
3.	Lower limb	22	6	2	50	80

4.	Thorax	14	3	4	34	55
5.	Abdomen & Pelvis	28	4	4	88	124
6.	Head & Neck	25	10	4	61	100
7.	Neuroanatomy	18	---	4	28	50
8.	Histology	30	---	-	60	90
9.	Embryology	38	---	2	08	48
10.	Medical Genetics	8	---	-	02	12
11.	Medical Ethics	02	---	-	02	04
Total		218	29	22	387	658 hrs

Recommended Books for First M.B.B.S:

S.No	Name of the book	Subject	Advice
1	Handbook of General Anatomy by B D Chaurasia, 6th Edition, CBS Publishers.	General Anatomy	Buy Any one book
2	General Anatomy, VishramSingh. 3ed, Elseiver.		
3	Clinically Oriented Anatomy-Moore K.L, Dalley A.F, Agur A.M	Gross Anatomy	Buy Any one book
4	Textbook of Human Anatomy (Volume 1 to 6) By Yogesh Sontakke. CBS Publishers		
5	Human Anatomy by B.D. Chaurasia Vol. I,II,III. 8th ed. CBS Publishers.		
6	Anatomy by Vishram Singh vol. I,II,III. 3rd edn.Elseiver.		

7	Clinical Anatomy by Regions- Richard S. Snell		
8	Gray's Anatomy for Students. South Asia Edn- Elsevier. 2017.Raveendranath V. etal		
9	Gray's Anatomy by Susan Sandring , 41st Ed.Elseiver	Gross Anatomy	Reference book - optional
10	Clinical Neuroanatomy of Medical Students by Richard S Snell -. Wolter Kluwer	Neuro-Anatomy	Buy Any one book
11	Clinical Neuroanatomy for Medical Students by Vishram Singh. 3rd Edition. Elsevier.		
12	Neuroanatomy for Medical Students - Lippincott Wolters Kluwer G P Pal		
13	Barr's the Human Nervous System: An Anatomical Viewpoint- Murray L. Barr, John A. Kiernan	Neuro-Anatomy	Reference book- optional
14	A Textbook of Human Histology with Colour atlas –Yogesh Sontakke	Histology	Buy Any one book
15	Di Fiore's. Atlas of Histology: With Functional Correlations- Eroschenko V.P., Lippincott Williams and Wilkins		
16	Histology: A Text and Atlas: With Correlated Cell and Molecular Biology-Ph.D. Ross, Michael H. and M.D. Pawlina, Wojciech	Histology	Reference book- optional

17	Langman's Medical Embryology by T.W. Sadler, J.N.Gardner, South Asian Edition. Wolters Kluwer	Embryology	Buy Any one book
18	Text book of Clinical Embryology with Clinical Cases. Yogesh Sontakke. CBS Publishers		
19	Human Embryology by Inderbir Singh 11 th ed. Jaypee publishers		
21	Developing Human by Keith Moore& Persaud - Elsevier		
22	LARSEN'S HUMAN EMBRYOLOGY-Gary Schoenwolf	Embryology	Reference book-optional
23	Cunningham's Manual of Practical Anatomy by G J Romanes, Vol-I,II,III, 16th Edn, Oxford Publishers.	Practical/ Dissection Manual	Buy any one author all 3 volumes
24	Thieme dissector-Thieme Medical publishers (Three volumes)Vishram Singh, GP Pal, SD Gangane		
25	Clinical Anatomy - Snell	Clinical Anatomy	Optional
26	Principles of Clinical Genetics – Yogesh Sontakke	Genetics	Buy Any one book
27	Human Genetics by S.D. Gangane , Elsevier.		
28	Emery's Elements of Medical Genetics	Genetics	Reference book-optional
29	Surface and Radiological Anatomy by A.Halim	Surface and Radiology	Buy Any one book
30	Atlas of Human Anatomy. Elsevier- Netter.	Gross Anatomy	

31	Atlas of Anatomy, 3rd Edition, Thieme Publishers	Atlas	Buy Any one book
32	Grant's Atlas of Anatomy. Wolter Kluwer- Agur A.M, Dalley A.F		
33	Multiple Choice Questions and Viva in Human Embryology. Author: Ujwala Bhanarkar, Yogesh Sontakke, CBS Publishers, 2022. Companion Workbook for Textbook of Human Embryology. Author: Yogesh Ashok Sontakke, CBS Publishers, 2nd Edition. 2022 Companion Workbooks for Textbook of Human Anatomy. For volumes 1 and 2; For volumes 3 and 4, For volumes 5 and 6. Author: Yogesh Ashok Sontakke, CBS Publishers 2022.	Companion Workbooks	Optional

Internal Assessment Examination

Notified tests one hour 30 minutes.

S.No	Question type	Section A	Section B		No. of papers	Total
	IA Exams	MCQs (1 mark)	LAQ (10 marks)	SAQ (5 marks)		
1	Notified test	10x1	1x10	6x5	1	50

Section – A: Multiple choice questions all single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 10 minutes
Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ)
Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Weightage of marks in internal assessment theory

- 7 notified test and one preprofessional theory exam will be conducted.
- Each notified test will carry 10% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from notified tests.
- Remaining 40% of marks will be from preprofessional theory tests

Weightage of marks in internal assessment practical

- 4 practical tests and one pre-professional practical exam will be conducted.
- Each practical test will carry 20% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from three practical tests will be taken
- Remaining 40% of marks will be from preprofessional theory tests

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Model Question Paper - Anatomy

Duration: 3 hours

Maximum marks: 100

Instructions:

- Write Section B and Section C in separate answer booklets
- Attempt all questions
- Illustrate with suitable diagrams and clinical significance wherever necessary.

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

II. Long Answer Question (LAQ)

Marks: 2+2+2+2+2= 10 marks

1. 20 years old Mr. X came to the OPD with history of fall on an outstretched hand while playing hockey. On examination, he had severe pain, diffuse swelling, inability to move the joint with a visibly deformed shoulder. What is the clinical condition?

Explain the joint involved under the following headings.

- a) Type of joint, bones involved, ligaments
- b) Movements and muscles producing movements
- c) Scapulohumeral rhythm
- d) Factors maintaining the stability of shoulder joint
- e) Applied significance

III. Short Answer Questions (SAQ)

6x5=30 marks

2. Lymphatic drainage of Mammary Gland.
3. Microscopic anatomy of Thymus with special mention on Blood Thymus barrier.
4. Explain meiotic non-disjunction with suitable clinical examples.
5. What are neural crest cells? Give their migration pathway & list their derivatives.
6. Ulnar nerve- root value, course, branches and distribution
7. Explain the embryological basis of difference in the course of recurrent laryngeal nerves

Section -C

IV.Long Answer Question (LAQ)

Marks: 2+2+2+2+2= 10 marks

8.A 55-year-old man was rushed to the emergency room with a complaint of compressive type chestpain radiating to the left upper limb, sweating and palpitation. Investigation revealed infarction in the apex of the heart.

A. Explain the anatomical basis behind the radiating pain to the upper limb, sweating and Palpitation **(2 marks)**

B. Describe the origin, course, branches and area of supply of the affected structure **(2+2+2+2=8)**

V. Short Answer Questions (SAQ)

6x5=30 marks

9.Discuss the pleural recess and explain the anatomical basis of thoracocentesis

10.Describe the origin, course, relations, tributaries and applied anatomy of thoracic duct.

11.Describe the development of diaphragm and explain the embryological basis of congenital diaphragmatic hernia

12.Describe the development of interventricular septum and explain the embryological basis of ventricular septal defect.

13.Correlate the histology of trachea with its functions (draw diagram)

14.. Describe blood supply of long bone with its clinical significance.

Blueprint for Theory Mark Distribution
PAPER-I – ANATOMY

Syllabus - Superior Extremity, Head & Neck, Neuro-Anatomy, General Anatomy, General Histology & Related Systemic Histology, Related Systemic Embryology & Genetics

S. No	Region	Section- A (MCQ)	Section B & C	Total Marks
1.	Superior Extremity	3	15	18
2.	Head & Neck	4	20	24
3.	Neuro-Anatomy	3	15	18
4.	General Anatomy & Genetics	1+2	10	13
5.	Histology (General & Systemic)	3+2	10	15
6.	Systemic Embryology	2	10	12
Total Marks		20	80	100

PAPER -II – ANATOMY

Syllabus - Thorax, Abdomen & Pelvis, Inferior extremity, General Embryology & Related Systemic Embryology, Related systemic Histology & Medical Ethics

S. No	Region	Section- A (MCQ)	Section B & C	Total Marks
1.	Thorax	4	15	19
2.	Abdomen, Pelvis & Perineum	5	25	30
3.	Inferior Extremity	3	15	18
4.	Systemic Histology	3	10	13
5.	General & Systemic Embryology	3	15	18
6.	Medical Ethics	2	-	02
Total Marks		20	80	100

Professional practical examination will be conducted for 80 marks and viva voce will be conducted for 20 marks

S.NO	Type of Evaluation	Topics	Marks Distribution
1	Gross Anatomy-I Discussion	Upper limb, Head & Neck Neuro Anatomy	15 marks
2	Gross Anatomy-II Discussion	Lower limb, Thorax, Abdomen, Pelvis & Perineum	15 marks
3	OSPE Charts		5x2=10 marks
4	Gross Anatomy Spotters		10x1=10 marks
5	Histology Spotters		10x1=10 marks
6	Histology Discussion	General & Systemic Histology	5+5=10 marks
7	Osteology Discussion	Axial skeleton & Appendicular skeleton	5+5=10 marks
8	Viva voce Examination	Embryology	10 marks
9	Viva voce Examination	Radiology & Surface Anatomy	5+5=10 marks

Department of Biochemistry

Vision

Department of biochemistry envisions to provide world class education for the students and foster research culture to transform them into a responsible health care professional of our nation. **Goal** To make the undergraduate students to understand the biochemical processes of life in both health and diseased states and to orient them to apply this knowledge in interpretation of laboratory data and solving clinical problems.

Course Specific Objectives

1. Describe the biochemical processes of metabolic events in healthy status
2. Explain biochemical basis of the diseases and their complications
3. Discuss the genetic aspects of cellular events
4. Explain the genetic basis of the diseases and their diagnosis
5. Discuss the nutritional importance of micro and macronutrients in health and diseases
6. Demonstrate the basis and rationale of Biochemical laboratory tests
7. Analyse and interpret the laboratory investigation results in clinical context

Specific learning objectives

(1) Knowledge

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

- i. Describe the structural, and functional organization of a cell and list its subcellular components.
- ii. Outline the fundamental aspects of enzymes, factors involved in the regulation of enzymatic activity and role of diagnostic enzymology in clinical practice.
- iii. Describe the processes involved in the digestion and absorption of macronutrients (carbohydrates, proteins and lipids) and micronutrients (vitamins and minerals) and the associated disorders
- iv. Integrate the various aspects of metabolism and discuss their regulation
- v. Explain the biochemical basis of inherited disorders and their clinical consequences
- vi. Explain mechanisms involved in maintenance of water, electrolyte, and hydrogen ion homeostasis and the associated disorders

- vii. Outline the chemistry and metabolism of nucleotides discuss causes and consequences of hyperuricemia
- viii. Outline the structure of nucleic acids. Discuss mechanisms of replication, transcription and translation in prokaryotes and eukaryotes.
- ix. Outline the molecular mechanisms of gene expression, regulation, the principles of genetic engineering/recombinant technology and their application in medicine.
- x. Outline the aspects of assessment of nutritional status, components of energy expenditure and malnutrition.
- xi. Summarize the basic concepts, types of immunity and immune responses and structure, types, and functions of immunoglobulins
- xii. Outline the biochemical basis of environmental health hazards, oxidative stress and biochemical basis of cancer and carcinogenesis.
- xiii. Explain the principles of various conventional and specialized laboratory investigations
- xiv. Describe the utility of the lab results done to assess function of liver, thyroid, kidney, and adrenal glands
- xv. Suggest experiments to support theoretical concepts and clinical diagnosis

(2) Skills

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

- i. Handle the commonly used laboratory equipment.
- ii. Perform simple biochemical tests in various human samples.
- iii. Segregation of different biomedical waste as per Biomedical waste management rules
- iv. Handle the conventional techniques/instruments relevant to the given clinical case and provide a provisional diagnosis.
- v. Analyze and interpret the laboratory investigations in the context of clinical case.
- vi. Demonstrate the skills to solve clinical problems and decision making.

Teaching Learning Methods:

- Lectures
- Tutorials
- Small group discussions
- Case based learning
- Problem Based Learning

- Early clinical exposure
- Self directed learning
- Seminars

Instructions for Practicals

1. All the students should be punctual in attending the practical classes.
2. Dress code for Practical sessions: All should wear neat white coat. Dress materials which are easily flammable should be avoided. Only formal dress with shoes is allowed. Girls should not leave their hair open and should be bound properly.
3. Students shall do laboratory work only in their specific allotted place and avoid visiting the working places of other students.
4. Each working place is provided with a set of glasswares and other consumables. Loss or breakage of any items should be reported immediately to the demonstrator and they are liable for charges.
5. Each student should attend instruction or demonstration classes before starting the practical.
6. Students shall complete all experiments in prescribed time, record them in their notebooks and get signature from their Demonstrator.
7. Each student should maintain a biochemistry practical record notebook and a observation book which should be covered with brown paper. The record notebook should be submitted within the stipulated time.
8. Do not do mouth-pipetting for any reagent or chemical
9. Give due care while handling the concentrated acids, alkali or toxic substances.
10. Due care must be given while doing the heating experiments. Always use test tube holder for these tests.
11. Students should not discuss among themselves inside the laboratory.
12. In the event of any accident such as spilling of acid over the body or eye, accidental entry of acid/ alkali in mouth during pipetting, electric shock, gas leakage etc., it should be reported to the staff immediately.

Syllabus

A. Domains of Learning:

K	Knowledge
S	Skill
A	Attitude
C	Communication

B. Level of Competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently

Topic		Domain	Level	Core Y/N	T/L Method	Assessment Method
Biochemistry of Cell (4 Hours)						
BC 1.1	Organization and composition of eukaryotic cells, functional role of sub cellular organelles	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 1.2	Structural organization of cell membrane and its properties	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 1.3	Membrane transport mechanisms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Enzymes (6 Hours)						
BC 2.1	Fundamental concepts and classification of enzymes, cofactors and coenzymes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 2.2	Discuss enzyme kinetics and different types of enzyme inhibition with clinically relevant examples	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 2.3	Discuss the regulation of enzyme activities and factors affecting enzyme activities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

BC 2.4	Fundamental understanding of isoenzymes with their clinical utility in pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 2.6	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Chemistry and Metabolism of Carbohydrates (12 Hours)		Domain	Level	Core Y/N	T/L Method	Assessment Method
BC 3.1	Discuss on classification of carbohydrates with examples and emphasis on their biomedical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.2	Discuss on composition, tissue distribution and disorders of mucopolysaccharides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

BC 3.3	Describe the digestion and absorption of dietary carbohydrates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.4	Discuss on pathway, regulation and biomedical significance of glycolysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.5	Discuss on pathway, regulation and biomedical significance of gluconeogenesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.6	Discuss on synthesis, utilisation and disorders of glycogen	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.7	Discuss on pathways and their related clinical significances of HMP shunt, Uronic acid pathway, galactose and fructose metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.8	Discuss the mechanism and significance of blood glucose regulation in fed and fasting state	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 3.9	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Chemistry and Metabolism of Lipids (14 Hours)		Domain	Level	Core Y/N	T/L Method	Assessment Method
BC 4.1	Describe properties, functions and classification of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.2	Enumerate the types of fatty acids based on size, nutritional need and unsaturation and their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.3	Discuss on phospholipids of humans, their clinical significance with brief note on phospholipases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.4	Describe the digestion and absorption of dietary lipids with note on role of bile salts and steatorrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.5	Explain the role of beta oxidation of fatty acids in generating energy with a note on other types of fatty acid oxidations and their associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.6	Explain ketone body metabolism and factors that lead to ketosis in conditions like Diabetes and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

BC 4.7	Explain how fatty acid are synthesised, elongated and desaturated with their regulation.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.8	Discuss on metabolism of lipids in adipose tissue (lipogenesis and lipolysis) and regulation of these events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.9	Enumerate the sources of cellular cholesterol, its synthesis, regulation and its clinical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.10	Enumerate the functions of bile salts, tests to detect them in urine with a note role of ascorbic acid in their synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.11	Discuss on general structure, types and components of each type of lipoproteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.12	Explain the functions and metabolism of chylomicrons, VLDL, LDL and HDL	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.13	Describe the types of hyperlipoproteinemia and role of lipoproteins in atherosclerosis	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce

BC 4.14	Enumerate the different types of eicosanoids with their functions and their role in diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.15	Describe the therapeutic uses of eicosanoids and inhibitors of eicosanoid synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 4.16	Discuss the causes, consequence and role of lipotropic factors in steatohepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Chemistry and Metabolism of amino acids (12 Hours)						
BC 5.1	Discuss classification of amino acids based on side chain structure, nutritional requirement and metabolic fates.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.2	Describe the structural organisation of proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.3	Discuss classification of proteins based on functions, composition and nutritional quality.	K	KH	Y	Lecture, Small group	Written/ Viva voce

					discussion	
BC 5.4	Brief about protein folding process and disorders due to misfolding (Prion disease and amyloidosis).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.5	Discuss on digestion and absorption of proteins and disorders associated with amino acid absorption.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.6	Explain the sources, transport and detoxification of ammonia. Discuss mechanism of ammonia toxicity and hyperammonemias.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.7	Discuss on the synthesis of non-essential amino acids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.8	Discuss catabolism of amino acids and their associated disorders and screening of those disorders (Inborn errors of metabolism screening in newborns).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.9	Learn about important specialized products obtained from tyrosine, tryptophan, arginine, glycine and methionine.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 5.10	Discuss on classification of plasma proteins (based on serum protein electrophoresis),	K	KH	Y	Lecture, Small group	Written/ Viva voce

	functions, their normal values, A:G ratio with a note on hypoproteinemia.				discussion	
Topic: Electron transport chain and Biological oxidation (3 Hours)						
BC 6.1	Describe the organization, components and functions of electron transport chain complexes with the concept of oxidative phosphorylation to explain ATP synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 6.2	Enumerate inhibitors of electron transport chain complexes and uncouplers of oxidative phosphorylation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 6.3	Brief about the enzymes involved in biological oxidation with examples	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Hemoglobin chemistry and metabolism(5 Hours)						
BC 7.1	Describe the structure and functions of hemoglobin with a note on structure function relationship	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 7.2	Discuss on hemoglobin variants and hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

BC 7.3	Briefly discuss on synthesis of heme with its regulation and discuss the types, defects, clinical manifestations and diagnosis of porphyrias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 7.4	Outline the bilirubin synthesis, its metabolism and disorders associated with it	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Organ Function Tests(6 Hours)						
BC 8.1	Discuss on functions, biochemical tests to detect disorders of kidney and their interpretation in various kidney disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 8.2	Discuss on functions, biochemical tests to detect disorders of liver and their interpretation in various liver disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 8.3	Discuss on functions, biochemical tests to detect disorders of thyroid and their interpretation in various Thyroid disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 8.4	Discuss on functions, biochemical tests to detect disorders of adrenal gland and their interpretation in various adrenal gland disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
Topic: Regulation pH, Water and electrolytes(4 Hours)						

BC 9.1	Explain the regulation of pH by buffers, respiratory system and kidney and brief about the importance of this regulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 9.2	Describe the causes and laboratory findings (using arterial blood gas analysis report) in metabolic and respiratory acid base disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 9.3	Discuss on functions, normal values, regulation and disorders associated with sodium, potassium and chloride	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 9.4	Regulation of fluids in various compartments of the body.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Vitamins(9 hours)						
BC 10.1	Describe the sources, absorption, biochemical functions and deficiency manifestations of water soluble vitamins – Vitamin B complex and Vitamin C	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 10.2	Describe the sources, absorption, biochemical functions and deficiency and toxicity manifestations of fat soluble vitamins – Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

	A, D, E and K					
BC 10.3	Describe various laboratory tests and their interpretation to diagnose various vitamin deficiency disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
Topic: Minerals(5 Hours)						
BC 11.1	Describe the classification of minerals, their absorption and biochemical functions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 11.2	Describe various implications of minerals in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 11.3	Describe various laboratory tests and their interpretation to diagnose various mineral deficiency disorders and their toxicity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
Topic: Nutrition(4 Hours)						
BC 12.1	Discuss on basic concepts of Calorific value of major nutrients, basal metabolic rate, respiratory quotient and calculation of total energy expenditure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 12.2	Describe the Nutritional importance of dietary carbohydrates, lipids and proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

BC 12.3	Discuss on types, causes and biochemical alterations of protein energy malnutrition and obesity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Nucleic acid chemistry and metabolism(4 hours)						
BC 13.1	Describe the chemistry of Nucleotides and nucleic acids and enumerate the synthetic nucleotides with their applications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 13.2	Describe the synthesis and degradation of purines and explain the associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 13.3	Describe the synthesis and degradation of pyrimidines and explain the associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Molecular Biology (12 Hours)						
BC 14.1	Enumerate the events related to organization of DNA and cell cycle with its regulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.2	Discuss the events of DNA replication process with a note on drugs inhibiting this process, their	K	KH	Y	Lecture, Small group	Written/ Viva voce

	clinical use and telomerase function				discussion	
BC 14.3	Enlist the different types of DNA damages and describe the DNA repair mechanisms with their associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.4	Discuss on the events of RNA synthesis, post-transcriptional modifications and drugs inhibiting this process with their clinical utility	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.5	Enlist and briefly discuss on eukaryotic and prokaryotic methods of gene regulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.6	Discuss the events of Protein synthesis, post-translational modifications and discuss on drugs inhibiting this process with their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.7	Enumerate the salient features of Genetic code and discuss the different types of Mutations with examples	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 14.8	Describe the principle, steps, types and applications of molecular techniques like PCR, RFLP, rDNA technology and blotting	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Immunology(3 Hours)						
BC 15.1	Discuss on acquired/innate immunity and types of immune (primary & secondary) responses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 15.2	Describe the components and roles of cellular and humoral immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 15.3	Discuss on concept of structure and functions of antigen and various types of Immunoglobulins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
Topic: Oncology(3 Hours)						
BC 16.1	Describe the carcinogens and concepts of carcinogenesis with a note on oncogenes and tumor suppressor genes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 16.2	Discuss briefly on diagnosis (tumor markers) and basis of cancer chemotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
Topic: Xenobiotic metabolism(2 Hours)						
BC 17.1	Enumerate the different phases of detoxification reactions in humans to detoxify the toxins and its metabolites	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Topic: Free radicals and anti-oxidants(2 Hours)						
BC 18.1	Discuss on sources, biological effects and role of free radicals (oxidative stress) in pathogenesis of disorders (like cancer, autoimmune disorders, atherosclerosis and cataract)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce
BC 18.2	Enumerate the various anti-oxidant defence mechanisms and laboratory tests to measure oxidative stress	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce

Comp No	Topic	Domain	Level	Core Y/N	T/L Method	Assessment Method
BC 19.1	Describe the commonly used laboratory apparatus (glass wares, pipettes, etc)	S	SH	N	Small Group Discussion	Written/ Viva voce
BC 19.2	Discuss on good safe laboratory practices	K	KH	N	Small Group Discussion	Written/ Viva voce
BC 19.3	Discuss the guidelines and procedures of Biomedical waste disposal	S	SH	Y	DOAP session	Written/ Viva voce
BC 19.4	Describe the basic principles, functioning and application of commonly used laboratory equipments including: Paper chromatography of amino acid Protein electrophoresis TLC, PAGE ABG analyser	K	KH	Y	Demonstration	Written/Viva voce

	Electrolyte analyser by ISE Auto analyser ELISA pH meter DNA isolation from blood / tissue					
BC 19.5	Outline the principle and uses of paper chromatography in urinary screening of inborn errors of metabolism	K	KH	Y	Demonstration	Written/Viva voce
BC 19.6	Discuss the principles, Instrumentation and applications of colorimetry and spectrophotometry	K	KH	Y	Demonstration	Written/Viva voce
BC 19.7	Composition of CSF	K	KH	Y	Lecture/small group teaching	Written/Viva voce
BC 19.8	Discuss the rationale of using biochemical tests in the following conditions: Diabetes mellitus Dyslipidemia Myocardial infarction Renal failure Gout Proteinuria Nephrotic syndrome Edema Jaundice	K	KH	Y	Lecture/small group teaching	Written/Viva voce

	Liver diseases Pancreatitis Acid base balance disorders Thyroid disorders					
BC 19.9	Perform urine analysis to determine normal constituents of urine	S	P	Y	Demonstration	Skill Assessment
BC 19.10	Perform urine analysis to determine abnormal constituents of urine	S	P	Y	Demonstration	Skill Assessment
BC 19.11	Estimation of serum Glucose by colorimetry	S	P	Y	Demonstration	Skill Assessment
BC 19.12	Estimation of serum creatinine and calculate creatinine clearance	S	P	Y	Demonstration	Skill Assessment
BC 19.13	Estimation of serum Urea and calculate Urea clearance	S	P	Y	Demonstration	Skill Assessment
BC 19.14	Estimation of serum total protein	S	P	Y	Demonstration	Skill Assessment
BC 19.15	Estimation of serum albumin and calculate A:G ratio	S	P	Y	Demonstration	Skill Assessment
BC 19.16	Demonstrate the estimation of serum total cholesterol and HDL-cholesterol	S	SH	Y	Demonstration	Written/Viva voce
BC 19.17	Demonstrate the estimation of triglycerides	S	SH	Y	Demonstration	Written/Viva voce

BC 19.18	Demonstrate estimation of calcium and phosphorous	S	SH	Y	Demonstration	Written/Viva voce
BC 19.19	Demonstrate the estimation of serum bilirubin	S	SH	Y	Demonstration	Written/Viva voce
BC 19.20	Demonstrate the estimation of SGOT/ SGPT	S	SH	Y	Demonstration	Written/Viva voce
BC 19.21	Demonstrate the estimation of alkaline phosphatase	S	SH	Y	Demonstration	Written/Viva voce

C. Integration

Topic		Integrating Department
Biochemistry of Cell		
BC 1.3	Membrane transport mechanisms	Physiology
Topic: Enzymes		
BC 2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	Medicine
Topic: Chemistry and Metabolism of Carbohydrates		
BC 3.9	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism	Medicine
Topic: Chemistry and Metabolism of Lipids		
BC 4.13	Describe the types of hyperlipoproteinemia and role of lipoproteins in atherosclerosis	Pathology
BC 4.15	Describe the therapeutic uses of eicosanoids and inhibitors of eicosanoid synthesis	Pharmacology
Topic: Chemistry and Metabolism of amino acids		
BC 5.3	Explain the sources, transport and detoxification of ammonia with mechanism of ammonia toxicity and hyperammonemias.	Medicine
BC 5.5	Discuss catabolism of amino acids and their associated disorders and screening of those disorders (Inborn errors of metabolism screening in newborns).	Pediatrics
Topic: Hemoglobin chemistry and metabolism		

BC 7.2	Discuss on hemoglobin variants and hemoglobinopathies	Pathology
BC 7.3	Briefly discuss on synthesis of heme with its regulation and discuss the types, defects, clinical manifestations and diagnosis of porphyrias	Pediatrics
Topic: Organ Function Tests		
BC 8.1	Discuss on functions, biochemical tests to detect disorders of kidney and their interpretation in various kidney disorders	Physiology
BC 8.2	Discuss on functions, biochemical tests to detect disorders of liver and their interpretation in various liver disorders	Physiology
BC 8.3	Discuss on functions, biochemical tests to detect disorders of thyroid and their interpretation in various thyroid disorders	Medicine
BC 8.4	Discuss on functions, biochemical tests to detect disorders of adrenal gland and their interpretation in various adrenal gland disorders	Medicine
Topic: Regulation pH, Water and electrolytes		
BC 9.2	Describe the causes and laboratory findings (using arterial blood gas analysis report) in metabolic and respiratory acid base disorders.	Medicine
BC 9.4	Regulation of fluids in various compartments of the body.	Physiology
Topic: Nutrition		
BC 12.3	Discuss on types, causes and biochemical alterations of protein energy malnutrition and obesity	Medicine
TOPIC: IMMUNOLOGY		
BC 15.2	Describe the components and roles of cellular and humoral immunity	Microbiology

TOPIC: ONCOLOGY		
BC 16.1	Describe the carcinogens and concepts of carcinogenesis with a note on oncogenes and tumor suppressor genes	Pathology

D. Time Allotment

S.No	Session	Hours
1	Lectures	110
2	Practicals / Tutorials / Integration / ECE / SGT	150
3	Self Directed Learning	20
	Total	280

Assessment

A) Internal Assessment Examinations:

Notified tests one hour 30 minutes.

S.No	Question type	Section A	Section B		No. of papers	Total
	IA Exams	MCQs (1 mark)	LAQ (10 marks)	SAQ (5 marks)		
1	Notified test	10x1	1x10	6x5	1	50

Section – A: Multiple choice questions all single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 10 minutes
 Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ)
 Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Preprofessional examination: Duration 3 hours each paper

S.No.	Question type	Section A MCQs (1 mark)	Section B		Section C		Total
	Exams		LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper 1	20x1	1x10	6x5	1x10	6x5	100
2	Paper 2	20x1	1x10	6x5	1x10	6x5	100
Grand Total							200

Section – A: Multiple choice questions all single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 20 minutes
Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ)
Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Note:

- MCQ should be of direct type, assertion and reasoning type, and match the following type.
- One of the long answer question should be case scenario based with structured questions

Weightage of marks in internal assessment theory

- 7 notified test and one preprofessional theory exam will be conducted.
- Each notified test will carry 10% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from notified tests.
- Remaining 40% of marks will be from preprofessional theory tests

Weightage of marks in internal assessment practical

- 4 practical tests and one pre-professional practical exam will be conducted.
- Each practical test will carry 20% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from three practical tests will be taken
- Remaining 40% of marks will be from preprofessional theory tests

Question Paper Blueprint**Paper – I**

S. No	TOPICS	MCQs	LAQs	SAQs
1.	Biochemistry of Cell	1	-	1
2.	Bioenergetics, Biological oxidation & Electron transport chain	2	1	1
3.	Enzymes	3		1
4.	Chemistry and Metabolism of Carbohydrates	4		2
5.	Chemistry and Metabolism of Lipids	4	1	2
6.	Integration of Metabolism	-		1
7.	Organfunctiontest (kidney, adrenal, liver and thyroid)	2		1
8.	Chemistry and Metabolism of Hemoglobin	2		1
9.	Xenobiotic metabolism	1	-	1
10.	Free radicals and anti-oxidants	1	-	
11.	Instrumentation	-	-	1
Total Marks		20	20	60

Paper - II

S. No	TOPICS	MCQs	LAQs	SAQs
1.	Chemistry and Metabolism of proteins	4	1	2
2.	Molecular biology	5		2
3.	Chemistry and metabolism of nucleotides			1
4.	Extra cellular matrix	1		-
5.	Vitamins	4	1	2
6.	Mineral metabolism	1		1
7.	Acid base, Water, Electrolyte homeostasis	2		1
8.	Nutrition	1		1
9.	Oncology	1		1
10.	Immunology	1		1
Total Marks		20	20	60

Distribution of topics for Viva voce

Examiner-I

- Biochemistry of Cell
- Bioenergetics, Biological oxidation & Electron transport chain
- Enzymes
- Chemistry and Metabolism of Carbohydrates
- Organfunctiontest (kidney, adrenal, liver and thyroid)

Examiner-II

- Chemistry and Metabolism of proteins
- Chemistry and Metabolism of Hemoglobin
- Xenobiotic metabolism
- Free radicals and antioxidants
- Extra cellular matrix

Examiner-III

- Chemistry and Metabolism of Lipids

- Integration of Metabolism
- Vitamins
- Mineral metabolism
- Nutrition

Examiner-IV

- Chemistry and metabolism of nucleotides
- Molecular biology
- Immunology
- Oncology
- Instrumentation
- Water, Electrolyte, and acid base homeostasis

Practical Question Paper Pattern

Professional practical examination will be conducted for 80 marks and viva voce will be conducted for 20 marks.

1. Quantitative analysis	20 marks
2. Qualitative (Urine) analysis	20 marks
3. OSPE (3 response & 2 performance)	20 marks
4. Laboratory data interpretation (2cases)	20 marks
5. Viva voce examination	20 marks

Examination and Mark Distribution

A. Marks distribution & Examination Pattern

In the II Professional final examination, 50% of the total marks are based on internal assessment and 50% on the basis of performance in the final professional examination.

Theory (IA+Final professional) = 200 Marks

Practical (IA+Final professional) = 100 Marks **Total**

(Theory + Practical) = 300 Marks

Theory		Marks	Final Marks calculation
Internal Assessment (IA)		100	100
Final professional Examination	Paper I	100	100 (50% of Paper I and Paper II together)
	Paper II	100	
Total			200

Practical		Marks	Final Marks calculation
Internal Assessment (IA)		100	50
Final professional Examination	Practical	80	50
	Viva	20	
Total			100

MODEL QUESTION PAPER
FIRST MBBS PROFESSIONAL EXAMINATION
BIOCHEMISTRY– PAPER I

(Biochemistry of Cell, Bioenergetics, Biological oxidation & Electron transport chain, Enzymes, Chemistry and Metabolism of Carbohydrates, Chemistry and Metabolism of Lipids Integration of Metabolism, Organ function test (kidney, adrenal, liver and thyroid), Chemistry and Metabolism of Hemoglobin, Xenobiotic metabolism, Free radicals and anti-oxidants, Instrumentation)

Duration: 3 hours

Maximum marks: 100

Instructions:

Write Section B and Section C in separate answer booklets

Attempt all questions

Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

II. Long Answer Question (LAQ)

1x10=10

marks

1. _____

III. Short Answer Questions (SAQ)

6x5=30 marks

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Section – C

IV. Long Answer Question (LAQ)

1x10=10

marks

8. _____

V. Short Answer Questions (SAQ)

6x5=30 marks

9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

MODEL QUESTION PAPER
FIRST MBBS PROFESSIONAL EXAMINATION
BIOCHEMISTRY– PAPER II

(Chemistry and Metabolism of proteins, Molecular biology Chemistry and metabolism of nucleotides, Extra cellular matrix, Vitamins, Mineral metabolism, Acid base, Water, Electrolyte homeostasis, Nutrition, Oncology, Immunology)

Duration: 3 hours

Maximum marks: 100

Instructions:

Write Section B and Section C in separate answer booklets

Attempt all questions

Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

II. Long Answer Question (LAQ)

1x10=10 marks

1. _____

III. Short Answer Questions (SAQ)

6x5=30 marks

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Section – C

IV. Long Answer Question (LAQ)

1x10=10 marks

8. _____

V. Short Answer Questions (SAQ)

6x5=30 marks

9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

Recommended Textbooks

1. Harpers illustrated biochemistry. Rodwell V, Bender D, Botham KM, Kennelly PJ, Weil PA. McGraw Hill publishers (Latest edition).
2. Lippincott illustrated Reviews Biochemistry. Denise R Ferrier (Latest edition)
3. Textbook of Biochemistry for medical students by DM Vasudevan and Sreekumari. (Latest edition)

Recommended Reference Books

1. Marks' Essentials of Medical Biochemistry: A Clinical Approach. Michael Lieberman. Wolters Kluwer publications (latest edition).
2. Biochemistry. Lubert Stryer. W.H. Freeman and Company, New York. (Latest edition)
3. Immunology. Richard A. Goldsby, Thomas J Kindt, Barbara A Osborne, Janis Kuby. (Latest edition)
4. Lehninger Principles of Biochemistry. Lehninger, Nelson and Cox. England, Macmillan Higher Education, England (latest edition)

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DEPARTMENT OF PHYSIOLOGY

Vision

To evolve as the State of Art Department of Physiology in the nation by

- Achieving paramount excellence in undergraduate, postgraduate medical education in order to translate medical students into health care professionals of world-class standards who can take their roles as a competent Indian Medical graduate.
- Promoting quality integrated translational research in the fields of basic and clinical sciences thereby rendering worthwhile contributions to the field of medical research.
- Providing diagnostic and interventional health care services through leading edge technologies, contributing towards a healthier nation.

Mission

To educate and train the future healthcare professionals in an innovative teaching and learning environment in order to inculcate implicit knowledge on human physiology and its application in health and disease.

- To impart high quality medical education that promotes critical thinking and application of the knowledge in clinical practice to attain their role as ethically sound Physicians of first contact.
- To carry out world class research in Clinical Physiology and to pioneer in linking basic and clinical sciences in rendering healthcare services.

Core Values

- To provide an amiable teaching and learning environment for the medical students in furtherance of student-centred learning.
- To promote vertical and horizontal integration in medical teaching to contribute towards high quality evidence based and need based learning in medical education.
- To offer patient care services in diagnostics and physiology-based interventions in prevention and treatment of life style and metabolic disorders.
- To indulge in interdepartmental collaborative research in order to unfurl the link of basic and clinical sciences and to transcribe the same in rendering world-class healthcare services.

Physiology Curriculum

Objectives

At the end of the course, student will be able to acquire the following:

Knowledge

1. To describe the normal functioning of all the organ systems of the body.
2. To describe the role of each organ system in maintenance of homeostasis.
3. To recognize the physiology of normal growth and development.
4. To explain the physiological responses and adaptations to environmental stresses.
5. To Explain the underlying physiological mechanism in the etiopathogenesis and treatment of disease conditions.

Psychomotor and clinical Skills

1. To perform haematological/clinical/human experiments for the assessment of physiological parameters/functions.
2. To analyse and interpret the results of the above experiments performed in the laboratory.
3. To acquire a list of skills in clinical examination at the introductory level in order to effectively carry out the examination in patients.

Integration

1. To acquire an integrated knowledge of organ structure, function and biochemical mechanisms.
2. To acquire an integrated knowledge of physiological mechanisms and pathological disease conditions.
3. To integrate and apply the knowledge of basic physiology in the management of disease conditions.

Course Duration

S.No	Topic	Theory		Theory Total	Practical	Total
		Theory lecture	Tutorials			
1	General Physiology & Body fluids	12	3	15	7	22
2	Nerve muscle	12	3	15	15	30
3	Blood	24	5	29	48	77
4	CVS	25	4	29	25	54
5	RS	18	4	22	25	47
6	Environmental Physiology	3	2	5	-	5
7	Excretory	12	2	14	10	24
8	GIT	16	5	21	5	26
9	Endocrine	24	5	29	17	46
10	Reproduction	20	4	24	7	31
11	CNS	36	8	44	26	68
12	ANS	2	-	2	-	2
13	Special senses	13	3	16	15	31
14	Integrated Physiology	11	1	12	-	12
15	Nutrition	4	1	5	-	5
Total		230	50	280	200	480

Syllabus

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
General Physiology				
Introduction to Physiology and functional organization of human body. Describe and discuss the principles of homeostasis	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the structure and functions of a mammalian cell.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe intercellular communications	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe apoptosis – programmed cell death	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss transport mechanisms across cell membranes	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the fluid compartments of the body, its ionic composition & measurements	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the concept of pH & Buffer systems in the body	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue	K	KH	Lecture, Small group discussion	Written/Viva voce

Demonstrate the ability to describe and discuss the methods used to demonstrate the functions of the cells and its products, its communications and their applications in Clinical care and research.	K	KH	Lecture, Small group discussion	Written/Viva voce
Hematology				
Describe the composition and functions of blood components	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the origin, forms, variations, functions of plasma proteins and describe plasmapheresis	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the synthesis, functions of Hemoglobin and explain its breakdown.	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe variants of hemoglobin and hemoglobinopathies.				
Describe RBC formation (erythropoiesis & its regulation) and its functions. Discuss the source stimuli, functions and regulations of Erythropoietin	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe different types of anemia, Polycythemia and Jaundice	K	KH	Lecture, Small group discussion	Written/Viva voce

Describe WBC formation (granulopoiesis) and its regulation, classification, normal count, functions and physiological/pathological variations	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the formation of platelets, functions and variations.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the physiological basis of hemostasis and, anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura), disseminated intravascular coagulation, blood component therapy and effects of splenectomy.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion, blood group inheritance, Rh incompatibility & erythroblastosis	K	KH	Lecture, Small group discussion, ECE- Visitto blood bank	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
fetalis, Bombay blood group, MN blood group system, kernicterus and exchange transfusion, autologous transfusion, other important blood groups, cold antibodies.				

Define and classify different types of immunity.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the development of immunity and its regulation, primary and secondary response, physiological basis of vaccination, complement system, components and functions of reticuloendothelial system.				
Discuss the consequences of failure of cell mediated and humoral immunity, lymphokines, endogenous pyrogens, AIDS, organ transplantation, graft rejection.	K	KH	Lecture, Small group discussion	Written/Viva voce
Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	DOAP sessions	Practical/OSPE/ Viva voce
Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc.	K	KH	Demonstration	Written/Viva voce
Describe steps for reticulocyte and platelet count	K	KH	Demonstration sessions	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Nerve and Muscle Physiology				

Describe the structure and functions of a neuron and neuroglia Discuss the Nerve growth factor and cytokines	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the types, functions, nerve conduction & properties of nerve fibres Discuss the effect of Hypoxia, pressure and local anaesthesia on different nerve fibres	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the degeneration, regeneration in peripheral nerves and demyelinating diseases	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the physiological basis of action of neuro-muscular blocking agents	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the pathophysiology of Myasthenia gravis and Lambert-Eaton syndrome	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the different types of muscle fibres and their structure	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe action potential and its properties in different muscle types (skeletal & smooth)	K	KH	Lecture, Small group discussion	Written/Viva voce

Describe the molecular basis of muscle contraction in skeletal muscle and in smooth muscle	K	KH	Lecture, Small group discussion	Written/Viva voce
Explain the features and physiological basis of Rigor Mortis				
Describe the types of muscle contraction (isometric and isotonic), Skeletal muscle fibre types, motor unit and size principle	K	KH	Lecture, Small group discussion	Written/Viva voce
Explain energy sources and muscle metabolism	K	KH	Lecture, Small group discussion	Written/Viva voce
Explain the gradation of muscular activity	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe muscular dystrophy: Myopathies	K	KH	Lecture, Small group discussion	Written/Viva voce
Perform Ergography	S	SH	DOAP sessions	Practical/OSPE/ Viva voce
Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment	S	SH	DOAP sessions	Practical/OSPE/ Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe Strength-duration curve	K	KH	Lecture, Small group discussion	Written/Viva voce

Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments	S	KH	Demonstration, Computer assisted learning methods	Practical / Viva voce

Gastro-intestinal Physiology & Nutrition

Describe the structure and functions of digestive system, enteric nervous system – components, functions and regulation. Describe basic electric rhythm, migrating motor complex	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the source of GIT hormones, their regulation and functions	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the Phases of deglutition (swallowing), mechanism, dysphagia	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method

Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre, peristaltic rush, mass peristalsis, Gastrocolic and ileo-ileal reflexes, constipation, diarrhoea, barium meal studies, endoscopy	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the physiology of digestion & absorption of nutrients, dietary fibres, malabsorption syndrome, steatorrhea	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the concept of balanced diet - factors affecting caloric requirements - requirements of various nutrients, sources, daily needs, recommended dietary allowances nutrition under special conditions – pregnancy, lactation, growing child, pre-biotics and probiotics, glycaemic index	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the Gut-Brain Axis	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe & discuss the structure and functions of liver and gallbladder	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe pre-hepatic, hepatic and post hepatic jaundice and their differentiating features, Cholecystectomy and Cholelithiasis or gallstones	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Lecture, Small group discussion, Demonstration	Written/Viva voce
Discuss the physiology aspects of: peptic ulcer, gastro- oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease, Achalasia cardia, pernicious anaemia	K	KH	Lecture, Small group discussion	Written/Viva voce
Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment	S	SH	DOAP session	Skill assessment/ Viva voce/OSCE
Cardiovascular Physiology (CVS)				
Describe the functional anatomy of heart including chambers, Pacemaker tissue and conducting system	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the morphology, properties of cardiac muscle and metabolic functions. Describe the types, different phases and ionic basis of cardiac action potential	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe generation of pacemaker and conduction of cardiac impulse.	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe abnormal ECG in arrhythmias, heart block and myocardial Infarction, alterations in the ionic composition of the body fluids, Long QT syndrome and discuss on Holter monitoring.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss haemodynamics of circulatory system. Describe Mayer's waves, Traube - Herring wave and sympathetic vasodilator system.	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the events occurring during the cardiac cycle, functional basis of heart sounds, Jugular venous pulse, arterial pulse, murmurs, abnormal pulses.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the factors affecting heart rate	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the factors affecting cardiac output, and discuss the normal values, physiological variations and its regulation. Discuss the measurement of cardiac output	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe the determinants of blood pressure and give its normal values. Discuss the short and long – term regulation of blood pressure. Describe hypertension, hypotension and their physiological basis of treatment	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss local and systemic cardiovascular regulatory mechanisms, nutrition and metabolism of the heart.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe & discuss regional circulation including microcirculation, lymphatic circulation (glymphatics), coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the patho-physiology, classification and management of shock, syncope and heart failure	K	KH	Lecture, Small group discussion	Written/Viva voce
Record blood pressure & pulse at rest and in different postures and exercise in a volunteer or simulated environment	S	SH	DOAP sessions	Practical/OSPE / Vivavoce
Record and interpret normal ECG in a volunteer or simulated environment	S	SH	DOAP sessions	Practical/OSPE / Vivavoce
Observe cardiovascular autonomic function tests in a volunteer or simulated environment	S	SH	DOAP sessions	Skill assessment/ Vivavoce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment	S	SH	DOAP sessions	Practical/OSPE / Vivavoce
Record Arterial pulse tracing using finger plethysmography in avolunteer or simulated environment	S	SH	DOAP sessions, Computer assisted learning methods	Practical/OSPE / Vivavoce
Respiratory Physiology				
Describe the functional anatomy of respiratory tract and functions of respiratory system	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities, alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, V/Q ratio abnormalities, diffusion capacity of lungs and difference between obstructive and restrictive lung diseases	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the diffusion and exchange of respiratory gases at alveolar-capillary membrane, factors affecting diffusion, Atelectasis, Adult respiratory distress syndrome	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide, factors affecting it Explain carbon monoxide poisoning	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe the control of breathing, neural control – higher centres, reflexes, chemical control – central & peripheral chemoreceptors and the role of CO ₂ , O ₂ , H ⁺ Explain abnormal breathing patterns.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the physiology of high-altitude, deep-sea diving and zero gravity	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the principles of artificial respiration, oxygen therapy	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss lung function tests & their clinical significance	K	KH	Lecture, Small group discussion	Written/Viva voce
Demonstrate the correct technique to perform & interpret Spirometry	S	SH	DOAP sessions	Skill assessment/ Vivavoce
Demonstrate the correct technique to perform stethography	S	SH	DOAP sessions	Skill assessment/ Vivavoce
Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment	S	P	DOAP sessions	Skill assessment/ Viva voce/OSCE

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment	S	SH	DOAP sessions	Practical/OSPE / Vivavoce
Renal Physiology				
Describe structure and function of kidney, difference between cortical and juxtamedullary nephrons, peculiarities of renal circulation and renal hypertension.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the mechanism and regulation of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe & discuss the significance & implication of renal clearance	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe artificial kidney, dialysis and renal transplantation, physiological basis of action of diuretics	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe & discuss Renal Function Tests	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe cystometry and discuss the normal cystometrogram	K	KH	Lecture, Small group discussion	Written/Viva voce
Endocrine Physiology				
Discuss Introduction to endocrine physiology, hypothalamo-pituitary axis Describe & differentiate the mechanism of action of steroid, protein and amine hormones	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe the physiology of Thymus, Pineal Gland and other local hormones	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the physiology of bone and calcium metabolism	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome.	K	KH	Lecture, Small group discussion	Written/Viva voce
Reproductive Physiology				
Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its psychological association, composition and functions of semen, blood – testis	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
barrier and male infertility.				
Describe female reproductive system: (a) functions of ovary and its control, oogenesis, indicators for ovulation (b) menstrual cycle - hormonal, uterine and ovarian changes, menstrual disorders	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the physiological effects of sex hormones	K	KH	Lecture, Small group discussion	Written/Viva voce
Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the effects of removal of gonads on physiological functions	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Lecture, Small group discussion	Written/Viva voce
Interpret a normal semen analysis report including (a) sperm count, (b) sperm morphology and (c) sperm motility, as per WHO guidelines and discuss the results	K	KH	Lecture, Small group discussion	OSPE/Viva voce
Discuss the physiological basis of various pregnancy tests	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	Lecture, Small group discussion	Written/Viva voce
Neurophysiology				
Describe and discuss the organization of nervous system, neuroglial cells neurotransmitters and neuromodulators	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the transport across blood brain barrier, cerebrospinal fluid, lumbar puncture and hydrocephalus.	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the functional anatomy of spinal cord, its functions and physiological basis of neural deficits caused by lesions at various levels of the neuroaxis	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss somatic sensations & sensory tracts & sensory disturbances	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the physiology of pain sensation, endogenous pain regulatory mechanisms, organization of motor system and motor cortex reflexes -	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
classification, characteristics and properties, central inhibition and counter-irritants physiological basis of use of analgesics, spinal processing of information.				
Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture, equilibrium & vestibular apparatus and physiology of locomotion	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss structure and functions of reticular activating system	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss Electroencephalography (EEG) waves, physiological basis of production and clinical uses of EEG	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the neurophysiology of sleep, genesis of sleep and sleep disorders	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss the physiological basis of memory, long-term potentiation, long-term depression, Alzheimer's disease and	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
senile dementia				
Describe the physiological basis of learning and speech and speech / language disorders	K	KH	Lecture, Small group discussion	Written/Viva voce
ANS - Functions of sympathetic and parasympathetic divisions, Horner's syndrome	K	KH	Lecture, Small group discussion	Written/Viva voce
Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment	S	P	DOAP sessions	Skill assessment/ Viva voce/OSCE
Identify normal EEG forms	S	S	Small group teaching	OSPE/Viva voce
Special senses				
Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision (Photoreceptors, signal transduction and perception), colour vision, colour blindness, intra ocular pressure, glaucoma, refractive errors, colour blindness, physiology of pupil and light reflex	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe and discuss the physiological basis of lesion in visual pathway and visual field defects	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss functional anatomy of ear, auditory pathways & physiology of hearing	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss pathophysiology of deafness. Describe hearing tests and audiometry	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss auditory & visual evoked potentials	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe the perception of smell and taste sensations, pathways and abnormalities	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss pathophysiology of altered smell and taste sensation	K	KH	Lecture, Small group discussion	Written/Viva voce
Demonstrate (i) Testing of visual acuity, colour and field of vision (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment	S	P	DOAP sessions	Skill assessment/ Vivavoce
Integrated Physiology				

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Describe and discuss mechanism of temperature regulation	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss adaptation to altered temperature (heat and cold)	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss mechanism of fever, cold injuries and heat stroke	K	KH	Lecture, Small group discussion	Written/Viva voce
Describe and discuss physiological consequences of sedentary lifestyle	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the growth, development, Interpret growth charts	K	KH	Small group teaching	Practical/OSPE / Vivavoce
Describe and discuss physiology of aging; theories of aging, free radicals and antioxidants	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss & compare cardio-respiratory changes in exercise (isometric and isotonic) with that in the resting state and classification of physical activity based on energy expenditure and effect of training.	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss & compare cardio-respiratory changes under different environmental conditions (heat and cold)	K	KH	Lecture, Small group discussion	Written/Viva voce

Topic	Domain K/S/A/C	Level K/KH/ SH/P	Suggested Teaching Learning method	Suggested Assessment method
Interpret anthropometric assessment	K	KH	Small group teaching	Practical/OSPE / Vivavoce
Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Lecture, Small group discussion	Written/Viva voce
Discuss the physiological effects of yoga and meditation	K	KH	Lecture, Small group discussion	Written/Viva voce
Obtain history and perform general examination in the volunteer / simulated environment	S	SH	DOAP sessions	Skill assessment/ Vivavoce
Demonstrate Basic Life Support in a simulated environment	S	SH	DOAP sessions	OSCE
K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication K – Knows, KH - Knows How, SH - Shows how, P- Performs independently DOAP session – Demonstrate, Observe, Assess, Perform OSCE - Objective Structured Clinical Examination OSPE - Objective Structured Practical Examination				

Topics for integrated teaching:

Topics	Departments
Diabetes mellitus	Physiology, Biochemistry, Pharmacology, Medicine
Anaemia	Physiology, CFM, Medicine
Thyroid	Physiology, Anatomy, Biochemistry, Medicine, surgery
Coronary circulation and myocardial infarction	Physiology, Anatomy, Biochemistry, Medicine
Jaundice	Physiology, Biochemistry, Medicine, surgery
Oedema	Physiology, Medicine
Cerebellar disease	Physiology, Anatomy, Medicine
Basal ganglia disorders	Physiology, Anatomy, Medicine
Dialysis	Physiology, Medicine, Biochemistry
Acid base balance and applied	Physiology, Biochemistry, Anaesthesia, Medicine
Pregnancy	Physiology, OG, CFM
Malnutrition	Physiology, Paediatrics, CFM
Pain	Physiology, Anaesthesia, Medicine
Refractive errors	Physiology, Anatomy, Ophthalmology, CFM

Practical:**Haematology:**

- Microscopy
- Methods of blood collection
- Principles of hemocytometry
- Determination of total red blood cell count
- Determination of total leucocyte count

- Determination of haemoglobin concentration of blood
- Preparation and examination of peripheral blood smear and identification of cells
- Determination of differential leucocyte count, Arneth count
- Determination of reticulocyte count (Demonstration)
- Determination of osmotic fragility of erythrocytes and specific gravity of blood
- Determination of platelet count (Demonstration)
- Determination of absolute eosinophil count
- Determination of erythrocyte sedimentation rate and packed cell volume and calculation of the blood indices
- Determination of ABO and Rh blood groups
- Determination of bleeding time, clotting time

Nerve and Muscle:

- Mosso's ergography
- Study of phenomenon of human fatigue
- Handgrip dynamometer / ergograph for isometric work
- Measurement of mechanical efficiency at different grades of exercise
- Study of salient features of electromyography (Demonstration)
- Estimation of conduction velocity of sensory and motor nerves (Demonstration)

Clinical examination:

- Introduction and history taking
- General physical examination
- Clinical examination of arterial pulse

Cardiovascular system:

- Recording and analysis of 12 lead electrocardiogram
- Measurement of blood pressure
- Determination of the effect of posture on blood pressure
- Determination of the effect of exercise on blood pressure
- Clinical examination of the human cardiovascular system (CVS)

- Demonstration of the properties of cardiac muscle in the frog (in simulation software)
- Study of the factors controlling inotropic and chronotropic functions in isolated perfused frog's heart. (in simulation software)
- Demonstration of exercise stress test
- Determination of systolic time intervals

Respiratory system:

- Recording of chest movements by a stethograph and to study the effects of speech, swallowing, coughing, breath-holding and hyperventilation
- Determination of various lung volumes and lung capacities, peak expiratory flow rate
- Determination of maximum voluntary ventilation (MVV) and forced expiratory volume (FEV) by spirometry
- Examination of human respiratory system
- Predicting VO₂ max using the Harvard Step test

G.I.T & Metabolism:

- Determination of resting metabolic rate in human
- Clinical examination of the abdomen
- Study of the movements of isolated segment of mammalian small intestine and the effects of: (i) Ions, (ii) Neurotransmitters, and (iii) Cold in vitro ((in simulation software)

Reproductive system:

- Changes in vaginal exfoliation cytology and cervical secretion during different phases of reproductive cycles in human and in rat Pregnancy tests (Demonstration)
- Pregnancy tests
- Determination of sperm count, motility and morphology in a human sample

Neurophysiology:

- Examination of nervous system
- Examination of cranial nerves
- Human electroencephalography: Method of recording and identification of different types of EEG waves (Demonstration)

- Assessment of autonomic function (Demonstration)
- Determination of reaction time in a human subject

Special senses:

- Determination of visual acuity and astigmatism
- Blind spot in the field of vision
- Clinical assessment of colour vision
- Perimetry
- Audiometry (Demonstration)
- Demonstration of visual and auditory evoked potentials (Demonstration)

Amphibian & Mammalian Experiments (will be demonstrated using simulation software)

- An introduction to instruments in amphibian/mammalian experiments
- Dissection of Frog gastrocnemius sciatic nerve preparation
- Simple muscle twitch
- Effect of warm and cold ringer on simple muscle twitch
- Genesis of fatigue
- Effect of two successive stimulus on muscle contraction
- Effect of pre and after-load on muscle contraction
- Effect of repeated stimuli on muscle preparation
- Frog heart dissection
- Normal cardiogram of the frog's heart
- Effect of temperature on cardiogram of frog
- Effects of Stannius ligatures on frog's heart
- Properties of frog's heart
- Effect of different variables (ions and drugs) on intact and isolated perfused heart of frog
- Study the movements of isolated mammalian intestine & effect and ions on it
- Study of mammalian uterine contractions

Learning Resource Materials

Textbooks, Reference books, Practical Record

Books Recommended

Textbooks:

1. Guyton & Hall Textbook of Medical Physiology - E-Book: A South Asian Edition.
2. G.K. Pal, Comprehensive textbook of medical physiology (Volume 1 & 2), Jaypee brothers.
3. A.K. Jain-Textbook of Medical Physiology.
4. Bijlani (RL), Understanding medical physiology; text book for medical students, Jaypee brothers, New Delhi.
5. Indu Khurana - Essentials of Medical Physiology, Recent Edn.

Reference Books:

1. Guyton and Hall Textbook of Medical Physiology (Guyton Physiology), International Edn.
2. Ganong (William F), Review of Medical Physiology, Recent Edn., Appleton and Lange.
3. Berne (Robert M) and Levy (Mathew), Physiology, Mosby Publication, Recent Edn.
4. Boron and Walter F. Medical Physiology, Recent Edn.

Practical Books :

1. G.K. Pal & Pravati Pal, Manual of Practical Physiology.
2. C. L. Ghai, A Textbook of Practical Physiology.
3. A.K. Jain, Textbook of Medical Physiology.

Practical Reference Books:

1. Macleod's Clinical Examination, Recent Edn.
2. Hutchinson Clinical Methods.
3. R Alagappan Manual of Practical Medicine, Recent Edn.

MCQ Textbook:

1. Guyton & Hall Physiology Review E-Book (Guyton Physiology)
2. A.K. Jain MCQ Textbook

Guidelines to Use the Practical Manual

- Check for any misprinting and errors in your practical manual and report immediately to the concerned.
- Fill your personal details in the cover page as well in the first page of record.
- It is mandatory to complete the exercises after every practical class and to get it signed by the assigned faculty within the notified time.
- Faculty signature in the index page is mandatory.
- The record must be brought when appearing for all the practical examinations after the completion and obtaining grade from the faculty.
- You are also encouraged to bring to notice any perceived factual discrepancy in the text with the Faculty-In-Charge of the practical exercise
- It is your responsibility to maintain the manual laminated and in good condition throughout the academic year.
- Use non blotting blue pen for writing and use only colour pencils for drawing and use whiteners for correction.

General Laboratory Instructions

- You are strictly instructed to conduct yourself in a professional manner. Failure of which will be addressed seriously.
- You are expected not to disturb any apparatus which has not been assigned to you.
- You should wear a clean white ironed laboratory coat.
- You are expected to wear your name batch. During exam time, you are expected to wear batch with registration number.
- Equip yourself with the following: Observation notebook, practical textbook, stationery articles, and wrist watch with seconds' facility, a clean piece of cloth and other clinical examination materials concerned with the practical. In case of not bringing any equipment, report to the faculty and make alternative arrangements before the practical begins.
- You are advised to check the practical schedule in advance and to prepare and familiarize yourself with the experiments and the principles attached to it.

- No loose hairs, properly trimmed nails, clean shaved face are minimum basic etiquette to be followed.
- During each practical a list of required apparatus will be provided to you by the lab in-charge in addition to your own materials. It is mandatory to check for the working status of the apparatus in front of the lab in-charge and sign in the issue register. Any damage which is reported after the initial check will be considered as breakage by the concerned student.
- For any queries/clarifications during the practical experiment consult either the instructor or the lab in-charge. Any sort of discussion with your fellow students is strictly prohibited inside the laboratory.
- It is mandatory to clean the instruments/equipment used during the practical, with special care on eye piece of the microscope and glass wares.
- All the equipment received should be returned in a good working condition to the lab-in-charge and the student should sign in the usage register.
- It is the responsibility of the students to dispose cotton, lancets and other disposables in the trash container and leave their workstation clean, while leaving the laboratory.
- In case of breakage, you are liable to either pay the cost of the broken equipment or replace the broken equipment as per the Standard Operating Procedure of the laboratory.
- Your overall conduct in the practical class is considered for your academic assessment.
- You are expected to complete the practical in time and document your original data in the observation book and get it signed by the instructor or faculty-in-charge before leaving the practical hall.
- There will be occasions where you will perform the practical experiment as a team. In such cases, the recording data may be duplicated so that each student may have a copy.
- You have to complete the relevant section in the practical workbook and submit the very next practical without fail for signature from the faculty.
- You will be scored based on the neatness of the report, accuracy, conduct in the laboratory, ability to efficiently perform the practical experiment, interpret the results, answering the questions related to each experiment. The marks for the practical manual will be included in mid-semester, end-semester and final internal assessment calculation.

Assessment

Internal Assessment Examination

Notified tests one hour 30 minutes.

S.No	Question type	Section A	Section B		No. of papers	Total
	IA Exams	MCQs (1 mark)	LAQ (10 marks)	SAQ (5 marks)		
1	Notified test	10x1	1x10	6x5	1	50

Section – A: Multiple choice questions all single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 10 minutes Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ) Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Preprofessional examination: Duration 3 hours each paper

S.No.	Question type	Section A MCQs (1 mark)	Section B		Section C		Total
	Exams		LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper 1	20x1	1x10	6x5	1x10	6x5	100
2	Paper 2	20x1	1x10	6x5	1x10	6x5	100
Grand Total							200

Section – A: Multiple choice questions all single response type (Reason & assertion, Matching, True/False statements, Picture based and Direct type) – Duration 20 minutes Section – B: Long Answer Question (LAQ) and Short Answer Questions (SAQ) Section – C: Long Answer Question (LAQ) and Short Answer Questions (SAQ)

Weightage of marks in internal assessment theory

- 7 notified test and one preprofessional theory exam will be conducted.
- Each notified test will carry 10% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from notified tests.
- Remaining 40% of marks will be from preprofessional theory tests

Weightage of marks in internal assessment practical

- 4 practical tests and one pre-professional practical exam will be conducted.
- Each practical test will carry 20% of marks.
- n-1 pattern to calculate internal assessment will be followed of notified tests
- 60% of marks from three practical tests will be taken
- Remaining 40% of marks will be from preprofessional theory tests

Exam pattern – Theory (Pre-professional and Professional Examination):

Duration: 3 hours

S.No.	Question type	Section A MCQs (1 mark)	Section B		Section C		Total
	Exams		LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper 1	20x1	1x10	6x5	1x10	6x5	100
2	Paper 2	20x1	1x10	6x5	1x10	6x5	100
Grand Total							200

Syllabus for Paper I and Paper II in Pre-Professional and Professional examination:

PAPER I: General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system, Endocrine, Reproductive system, Renal system

- SECTION A: MCQs
- SECTION B: General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system
- SECTION C: Endocrine, Reproductive system, Renal system

PAPER II: Cardiovascular system, Respiratory system, Environmental Physiology, Nervous system, Special Senses, Integrated Physiology

- SECTION A: MCQs
- SECTION B: Cardiovascular system, Respiratory system, Environmental Physiology
- SECTION C: Nervous system, Special Senses, Integrated Physiology

Examination and Mark Distribution

A. Marks distribution & Examination Pattern

In the II Professional final examination, 50% of the total marks are based on internal

assessment and 50% on the basis of performance in the final professional examination.

Theory (IA+Final professional) = 200 Marks

Practical (IA+Final professional) = 100 Marks

Total (Theory + Practical) = 300 Marks

Theory		Marks	Final Marks calculation
Internal Assessment (IA)		100	100
Final professional Examination	Paper I	100	100 (50% of Paper I and Paper II together)
	Paper II	100	
Total			200

Practical		Marks	Final Marks calculation
Internal Assessment (IA)		100	50
Final professional Examination	Practical	80	50
	Viva	20	
Total			100

Practical pattern for Pre-Professional and Professional examinations:
Total marks = 100 (Practical 80 marks + viva 20 marks)

Practical	Marks
Hematology	20
Clinical examination	15
Human experiments	15
Objective Structured Practical / Clinical Examination (OSPE/OSCE)	30 (10 stations : 4 skilled and 6 non-skilled) 3 marks each
Viva Voce	20
Total	100

Viva:

- Each student has to face four stations (examiners) individually
- Viva station (4 stations x 5 = 20 marks)

Station 1	General Physiology, Body fluids, Blood, Nerve muscle
Station 2	Endocrine, Reproductive system, Renal system
Station 3	Cardiovascular system, Respiratory system, Environmental Physiology
Station 4	Nervous system, Special Senses, Integrated Physiology

Question paper blue print

FIRST MBBS PROFESSIONAL EXAMINATION

PHYSIOLOGY – PAPER I

General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system,
Endocrine, Reproductive system, Renal system

Duration: 3 hours

Maximum marks: 100

Instructions:

- Write Section B and Section C in separate answer booklets
- Attempt all questions
- Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

(General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system)

II. Long Answer Question (LAQ)

1x10=10 marks

a. _____

10 marks

III. Short Answer Questions (SAQ)

6x5=30 marks

a. _____

5 marks

b. _____

5 marks

c. _____

5 marks

d. _____

5 marks

e. _____

5 marks

f. _____

5 marks

Section – C

(Endocrine, Reproductive system, Renal system)

IV. Long Answer Question (LAQ)

1x10=10 marks

a. _____

10 marks

V. Short Answer Questions (SAQ)

6x5=30 marks

a. _____

5 marks

b. _____

5 marks

c. _____

5 marks

d. _____

5 marks

e. _____

5 marks

f. _____

5 marks

**FIRST MBBS PROFESSIONAL EXAMINATION
PHYSIOLOGY – PAPER II**

Cardiovascular system, Respiratory system, Environmental Physiology, Nervous system,
Special Senses, Integrated Physiology

Duration: 3 hours

Maximum marks: 100

Instructions:

- Write Section B and Section C in separate answer booklets
- Attempt all questions
- Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

Cardiovascular system, Respiratory system, Environmental Physiology

II. Long Answer Question (LAQ)

1x10=10 marks

a. _____

10 marks

III. Short Answer Questions (SAQ)

6x5=30 marks

a. _____

5 marks

b. _____

5 marks

c. _____

5 marks

d. _____

5 marks

e. _____

5 marks

f. _____

5 marks

Section – C

Nervous system, Special Senses, Integrated Physiology

IV. Long Answer Question (LAQ)

1x10=10 marks

a. _____

10 marks

V. Short Answer Questions (SAQ)

6x5=30 marks

a. _____

5 marks

b. _____

5 marks

c. _____

5 marks

d. _____

5 marks

e. _____

5 marks

f. _____

5 marks

Topic-wise mark distribution (For Pre-Professional and Professional Examination)

PAPER-I – 100 Marks

SECTION	TOPIC	MARKS
Section – A MCQ	General Physiology	3
	Body fluids	1
	Blood	5
	Nerve muscle physiology	2
	Gastrointestinal system	2
	Endocrine	3
	Reproductive system	2
	Renal system	2
Sub-total (A)		20
Section – B	General Physiology & Body fluids	10
	Blood	10
	Nerve muscle physiology	10
	Gastrointestinal system	10
Sub-total (B)		40
Section – C	Endocrine	15
	Reproductive system	15
	Renal system	10
Sub-total (C)		40
TOTAL (A+B+C)		100

PAPER-II – 100 Marks

SECTION	TOPIC	MARKS
Section – A MCQ	Cardiovascular system	6
	Respiratory system	4
	Environmental Physiology	1
	Nervous system	6
	Special Senses	2
	Integrated Physiology	1
Sub-total (A)		20
Section – B	Cardiovascular system	20
	Respiratory system	15
	Environmental Physiology	5
Sub-total (B)		40
Section – C	Nervous system	20
	Special Senses	10
	Integrated Physiology	10
Sub-total (C)		40
TOTAL (A+B+C)		100

Model Question papers

Physiology Paper I

Section A – MCQs

20x1=20marks

Duration: 20 minutes

1. Choose the correct option after matching the following. An option can be used more than once.

a. Total body water	i. Radioactive chromium
b. Extracellular fluid	ii. Evans blue dye
c. Plasma volume	iii. Inulin
d. Erythrocyte volume	iv. Tritium

- A. a – i, b – iv, c – iii, d – ii
B. a – iv, b – iii, c – ii, d – i
C. a – ii, b – i, c – iv, d – iii
D. a – iv, b – ii, c – iii, d – i

2. Choose the correct option after matching the following. An option can be used more than once.

a. Destruction of haemoglobin	i. Enterochromaffin cells
b. Most alkaline GIT secretion	ii. Brunner's glands
c. Activates pancreatic enzymes	iii. Enterochromaffin-like cell
d. Secrete serotonin	iv. Kupffer cells
	v. Enterokinase
	vi. Trypsinogen
	vii. Pancreas

- A. a – i, b – ii, c – vi, d – iii
B. a – vi, b – v, c – iii, d – ii
C. a – iii, b – iv, c – ii, d – vi
D. a – iv, b – ii, c – v, d – i

3. Choose the correct option after matching the following. An option can be used more than once.

a. Prevents glucose being lost in the urine of healthy people.	i. Aldosterone

b. Decreases the renal clearance of sodium and thereby increases the extracellular volume.	ii. Antidiuretic hormone
c. Promotes the formation of angiotensin I.	iii. Glucagon
d. Lowers extracellular phosphate by increasing the renal clearance of phosphate.	iv. Insulin
e. Tends to lower both intracellular and extracellular osmolality.	v. Parathormone
	vi. Calcitonin
	vii. Renin
	viii. Rennin

A. a – iii, b – ii, c – iv, d – i, e – viii

B. a – i, b – ii, c – iii, d – v, e – vi

C. a – iv, b – i, c – vii, d – v, e – ii

D. a – v, b – ii, c – iv, d – vi, e – i

4. Choose the correct option after matching the following. An option can be used more than once.

a. Vaginal secretions are at their most fluid; the endometrium has regenerated but is not yet optimal for implantation.	i. Day 0
b. The endometrium has undergone ischaemic necrosis and external discharge has been noted.	ii. Day 4
c. The level of luteinizing hormone is around its peak.	iii. Day 7
d. The menstrual discharge has just ended	iv. Day 14
e. The level of progesterone is around its peak.	v. Day 21
	vi. Day 27

A. a – iv, b – i, c – iv, d – ii, e – v

B. a – ii, b – v, c – iii, d – I, e – vi

C. a – i, b – v, c – ii, d – vi, e – iii

D. a – v, b – iii, c – iv, d – ii, e – i

5. Assertion: During absolute refractory period, a second action potential cannot be elicited, even with a strong stimulus.

Reason: Activation gate of sodium channel will not reopen until the membrane potential returns to or near the original resting membrane potential level.

A. Both assertion and reason are true and reason is the correct explanation for assertion.

B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.

- C. Assertion is true, but reason is false.
- D. Assertion is false, but reason is true.

6. Assertion: Decreasing blood calcium level is a suitable method of decreasing blood clotting in an alive person.

Reason: Calcium is factor IV.

- A. Both assertion and reason are true and reason is the correct explanation for assertion.
- B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.
- C. Assertion is true, but reason is false.
- D. Assertion is false, but reason is true.

7. Assertion: A patient with hypothyroidism shows cold intolerance.

Reason: T4 is converted to T3 peripherally by deiodination.

- A. Both assertion and reason are true and reason is the correct explanation for assertion.
- B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.
- C. Assertion is true, but reason is false.
- D. Assertion is false, but reason is true.

8. Assertion: Oral contraceptive pills inhibit ovulation.

Reason: Oral contraceptive pills prevent the preovulatory surge of LH secretion by the pituitary gland.

- A. Both assertion and reason are true and reason is the correct explanation for assertion.
- B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.
- C. Assertion is true, but reason is false.
- D. Assertion is false, but reason is true.

9. During the second trimester of pregnancy, which is the predominant site of RBC production?

- A. Yolk sac
- B. Bone marrow
- C. Lymph nodes
- D. Liver

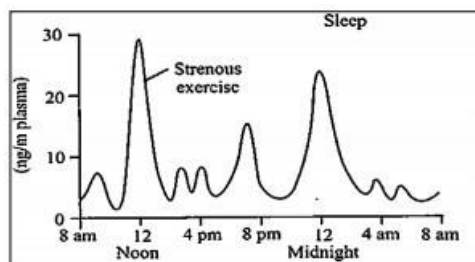
10. Which cell type migrates into inflammatory sites to clean up necrotic tissue and direct tissue remodelling?
- A. Neutrophil
 - B. Macrophage
 - C. Dendritic cell
 - D. Eosinophil
11. What is the term used for binding of IgG and complement to an invading microbe to facilitate recognition?
- A. Chemokinesis
 - B. Opsonization
 - C. Phagolysosome fusion
 - D. Signal transduction
13. CD4 is a marker of which of the following?
- A. B cells
 - B. Cytotoxic T cells
 - C. Helper T cells
 - D. An activated macrophage
14. Which of the following statements is true about facilitated diffusion?
- A. It is a form of active transport
 - B. It requires a carrier protein
 - C. No saturation limits
 - D. Requires creatine phosphate
15. Which of the following is true about generator potential?
- A. Graded potential
 - B. Follows all or none law
 - C. Non-decremental
 - D. Does not show summation
16. Which of the following is a false statement regarding Sodium Potassium ATPase pump?
- A. Coupling ratio of 3:2
 - B. β subunit has three extracellular glycosylation sites
 - C. α subunit has intracellular ouabain binding site

D. D. Na^+ and K^+ transport occur through the α subunit

17. Which of the following statement is false?

- A. Cholecystokinin is the most potent choleretic
- B. Secretion of bile into bile canaliculus is an active process
- C. Hepatic bile is more alkaline than gall bladder bile
- D. Bilirubin is a constituent of bile

18. The following graph corresponds to which of the following hormone?



- A. Insulin
- B. Cortisol
- C. Growth hormone
- D. Thyroid

19. Which of the following causes decrease in renal blood flow and GFR?

- a. Bradykinin
- b. Endothelin
- c. Dopamine
- d. Histamine

20. The part of renal tubule that is impermeable to solutes but permeable to water is

- a. Proximal tubule
- b. Thin descending limb of Loop of Henle
- c. Thick ascending limb of Loop of Henle
- d. Distal convoluted tubule

PHYSIOLOGY - PAPER I

General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system,
Endocrine, Reproductive system, Renal system

Duration: 3 hours

Maximum marks: 100

Instructions:

- Write Section B and Section C in separate answer booklets
- Attempt all questions
- Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Duration – 20 minutes

Section – B

(General Physiology, Body fluids, Blood, Nerve muscle physiology, Gastrointestinal system)

II. Long Answer Question.

1x10=10 marks

a. Draw a neat labelled diagram of neuromuscular junction. With the help of a flow chart, illustrate the steps of neuromuscular transmission. State the action of any 3 drugs acting at the neuromuscular junction. (3+4+3=10)

III. Short Answer Questions.

6x5=30

marks

- Explain, why dehydration is common and usually fatal in children, if not treated immediately. Explain why oral rehydration solution is administered in dehydration? (2.5+2.5)
- With the help of a flow chart, explain the mechanism of cell mediated immunity. (5)
- Explain pathophysiological basis of erythroblastosis fetalis. How can it be prevented? (4+1)
- Explain Primary active transport mechanism with a suitable example. (5)
- Describe the mechanism of gastric acid secretion and add note on gastric mucosal barrier. (4+1)
- Write the composition, physiological and clinical significance of dietary fibers. (2+1.5+1.5)

Section – C

(Endocrine, Reproductive system, Renal system)

IV. Long Answer Question.

1x10=10 marks

a. 40 year old female presented with history of weight gain, generalized fatigue, thinning of hair and constipation. She also complained that she is intolerant to cold, developed hoarseness of voice and she had irregular menstrual cycle. On examination she had dry skin, edematous hands and feet and delayed ankle jerk. What is the probable diagnosis. Describe the physiological actions of hormone that is defective in this condition. Discuss on the laboratory tests to diagnose this condition. (1+6+3)

V. Short Answer Questions.

6x5=30 marks

- a. Physiological basis of polyuria and polyphagia in Diabetes Mellitus (2.5+2.5)
- b. What are tests to detect ovulation (5)
- c. What is the role of loop of Henle in urine concentrating mechanism. (5)
- d. Renal function tests. (5)
- e. Discuss the formation and any TWO functions of Blood testis- barrier. (2.5+2.5)
- f. Explain the hormonal changes during menstrual cycle (5)

PHYSIOLOGY PAPER II

Section A – MCQs

20x1=20marks

Duration: 20 minutes

1. Match the various phases of the 'volume-pressure diagram' of a cardiac cycle.

a. J point elevation	i. Right bundle branch block
b. Tall T waves	ii. Hyperkalemia
c. Increased PR interval	iii. First degree heart block
d. RSR' pattern	iv. Myocardial Ischemia

- A. a – ii, b – iv, c – iii, d – i
B. a – i, b – iii, c – ii, d – iv
C. a – iv, b – ii, c – iii, d – i
D. a – iii, b – ii, c – iv, d – i

2. Choose the correct option after matching the following. An option can be used more than once.

a. Pressure difference must exist between the two ends of the vessel for the blood flow to occur	i. Ohm's Law
b. Turbulence increases with the increase in diameter of vessel	ii. Laplace's Law
c. About two thirds of the total systemic resistance to blood flow is arteriolar resistance in small arterioles	iii. Poiseuille's Law
d. Removal of kidney increases total peripheral resistance	iv. Bernoulli's theorem
	v. Reynold's number
	vi. Boyle's Law

- A. a – i, b – v, c – iii, d – i
B. a – ii, b – iii, c – i, d – ii
C. a – iii, b – i, c – vi, d – ii
D. a – v, b – ii, c – iv, d – i

3. Choose the correct option after matching the following. An option can be used more than once.

a. Nerve mediated vasodilation on skin injury	i. Monosynaptic
b. Knee jerk	ii. Disynaptic
c. Salivation on seeing food	iii. Polysynaptic
d. Withdrawal reflex	iv. Conditioned reflex

v. Unconditioned reflex

vi. Axon reflex

A. a – vi, b – iii, c – iv, d – i

B. a – vi, b – i, c – v, d – iii

C. a – iii, b – i, c – v, d – ii

D. a – ii, b – iii, c – iv, d – i

4. Choose the correct option after matching the following. An option can be used more than once.

a. Hippocampus

i. Anopia

b. Cerebellum

ii. Aphasia

c. Representational hemisphere

iii. Astereognosis

d. Categorical hemisphere

iv. Dysdiadokinesia

v. Akinesia

vi. Amnesia (anterograde)

A. a – ii, b – iv, c – ii, d – i

B. a – iv, b – iii, c – ii, d – i

C. a – vi, b – iii, c – v, d – ii

D. a – vi, b – iv, c – iii, d – ii

5. Assertion: Performance during severe exercise is not limited by the respiratory system.

Reason: Pulmonary ventilation required at maximal exercise exceeds the breathing capacity.

A. Both assertion and reason are true and reason is the correct explanation for assertion.

B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.

C. Assertion is true, but reason is false.

D. Assertion is false, but reason is true.

6. Assertion: Ear wax is a common cause of conductive deafness.

Reason: Rinne's test is positive in conductive deafness.

A. Both assertion and reason are true and reason is the correct explanation for assertion.

B. Both assertion and reasons are true, but reason is not the correct explanation for assertion.

C. Assertion is true, but reason is false.

D. Assertion is false, but reason is true.

7. What is the threshold level of membrane potential at which the sinoatrial node discharges?

- A. – 40 millivolt
- B. – 55 millivolt
- C. – 65 millivolt
- D. – 85 millivolt

8. In a resting adult, the typical ventricular ejection fraction is:

- A. 20%
- B. 30%
- C. 40%
- D. 60%

9. Which part of the circulation has the highest compliance?

- A. Capillaries
- B. Large arteries
- C. Veins
- D. Aorta

10. Decreased blood supply during exercise seen in

- A. Brain
- B. Intestines
- C. Kidneys
- D. Skeletal muscle

11. Which of the following is a false statement?

- A. Intra-alveolar pressure is 0 mm Hg at the end of expiration.
- B. Intrapleural pressure is negative during both inspiration and expiration.
- C. Intra-alveolar pressure is positive at the peak of expiration
- D. Forced expiration reduce intrapleural pressure to values as low as –30 mm Hg.

12. Which of the following is true about ascent to high altitude?

- A. Respiratory acidosis
- B. Polycythemia is due to dehydration
- C. Acute mountain sickness starts to develop on 7th day of the ascent
- D. Acetazolamide may be given prophylactically

13. Which of the following statement is true regarding the alpha rhythm of the EEG?

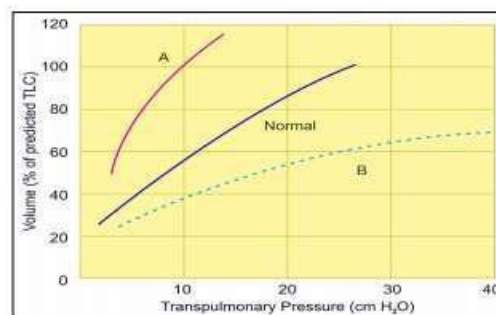
- A. Disappears when the eyes are closed
- B. Is an electrical potential with an amplitude around one millivolt
- C. Has a frequency of 8–13 Hz
- D. Has a lower frequency than the delta rhythm

14. Which of the following statement is true regarding the adaptation for vision in poor light?

- A. Complete after 2–3 minutes
- B. Dilatation of the pupil is the major cause of adaptation
- C. Due to regeneration of rod but not cone pigments
- D. Faster if red goggles are worn before entering the dark environment

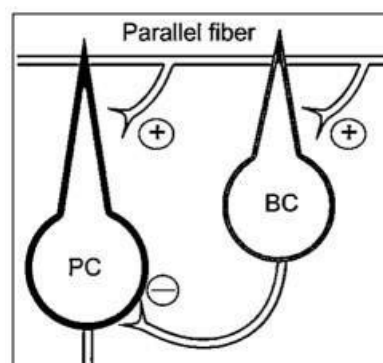
15. Curve A signifies which of the following options in the compliance curve of lung given below?

- A. Pulmonary fibrosis
- B. Atelectasis
- C. Emphysema
- D. ARDS



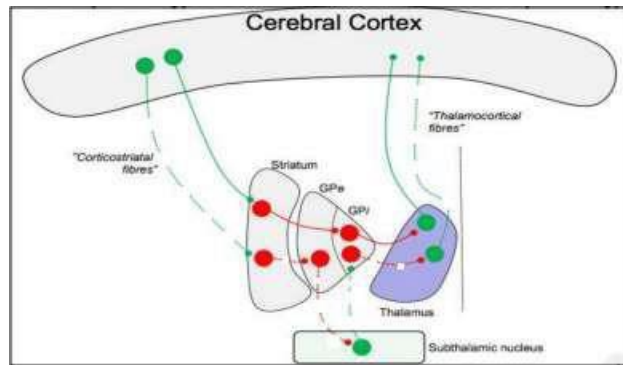
16. Which type of inhibition is depicted in the image of cerebellar circuit given below?

- A. Post-synaptic inhibition
- B. Pre-synaptic inhibition
- C. Feedback inhibition
- D. Feed forward inhibition

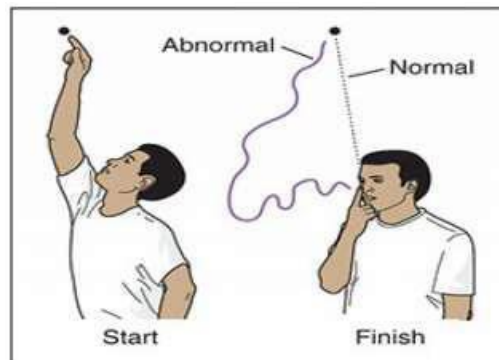


17. Which is the correct option for the circuit depicted in solid lines in the image given below?

- A. Direct pathway – facilitates movement
- B. Indirect pathway – inhibits movement
- C. Direct pathway – inhibits movement
- D. Indirect pathway – facilitates movement



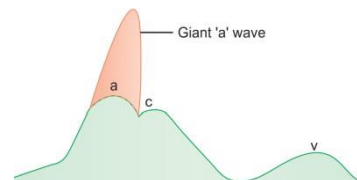
18. What does the image given below
- A. Dysdiadochokinesia
 - B. Dysmetria and decomposition of movement
 - C. Rebound phenomenon
 - D. Hypotonia



depict?

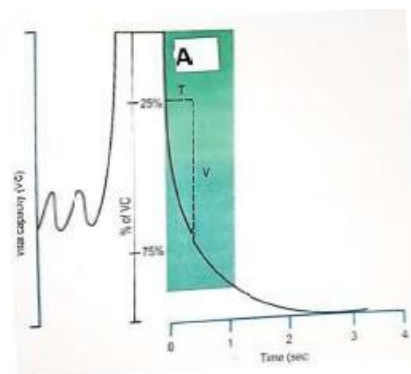
19. Cannon 'a' wave in the below given diagram is seen in which condition

- A) Atrial fibrillation
- B) Complete heart block when atrial and ventricular systole coincide
- C) Pericardial effusion
- D) Hyperkinetic circulatory shock



20. Identify the segment marked A

- A. FVC
- B. FEV1
- C. PEFR
- D. FEF25-75



PHYSIOLOGY - PAPER II

Cardiovascular system, Respiratory system, Environmental Physiology, Nervous system,
Special Senses, Integrated Physiology

Duration: 3 hours

Maximum marks: 100

Instructions:

Write Section B and Section C in separate answer booklets

Attempt all questions

Illustrate with suitable diagrams

Section – A

I. Multiple choice questions

20 x 1 mark = 20 marks

Section – B

Cardiovascular system, Respiratory system, Environmental Physiology

II. Long Answer Question.

1x10=10 marks

a. Define cardiac cycle and give its normal value. With the help of diagram, describe the left ventricular pressure, volume and acoustic changes in a single cardiac cycle. Add note on heart sounds.

(2+5+3=10)

III. Short Answer Questions.

6x5=30

marks

a. Pacemaker potential and its ionic basis.

(5)

b. Factors regulating myocardial contractility

(5)

c. Define vital capacity and give its normal value. How posture affects vital capacity(2+3)

d. Define hypoxia and list its types. Describe the type of hypoxia that occurs in carbon monoxide poisoning.

(2+3)

e. Factors shifting oxygen hemoglobin curve.

(5)

f. Mechanisms of temperature regulation in cold environment.

(5)

Section – C

Nervous system, Special Senses, Integrated Physiology

IV. Long Answer Question.

1x10=10 marks

a. A 58 years old male, who is a known hypertensive, complained of sudden muscular weakness and loss of voluntary movements on the right half of the body. On examination, deep tendon reflexes were exaggerated, Extensor plantar reflex was present, other superficial reflexes were absent and facial expression were preserved on the right side. Name the tract involved in this condition and what is the probable diagnosis? Describe the course and functions of the tract

involved. Write any 4 differences between Upper Motor neuron and Lower Motor neuron lesion. (2+6+2)

V. Short Answer Questions.

6x5=30 marks

- a. Brief the functional classification of cerebellum and list its functions (2+3)
- b. Theories of referred pain. (5)
- c. Errors of refractions. (5)
- d. Trace the optic pathway. Name the visual field defects in the lesions involving Optic chiasma and left optic tract (3+2)
- e. What are the physiological benefits of regular yoga practice? (5)
- f. Describe the long term effects of zero gravity on physiological systems in human (5)

Faculty Details

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Curriculum References

- AIIMS, New Delhi
- JIPMER, Puducherry
- AIIMS, Mangalagiri
- NMC CBME curriculum Vol 1

DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY

1. Introduction

Forensic Medicine is that branch of medical science which deals with the application of medical knowledge for the purpose of law and administration of justice. It is used by legal authorities for the solution of legal problems. It deals mostly with crimes against human being, in which medical examination and evidence are required.

There are various branches of this discipline which a student must learn thoroughly so that he/she is competent enough to deal with all the medico-legal issues arising out during practice. Medical law and ethics teach the physician the boundaries of his/her practice ground along with measures to be adopted to safeguard patient as well as him/her while delivering services in an ethical manner. It introduces the learners to various laws and regulations related to medical practice. Thus he/she acquires knowledge of law in relation to medical practice, medical negligence and respect for codes of medical ethics. Clinical forensic medicine is that part of the subject which teaches a practitioner irrespective of his field of practice, the various medico-legal aspects arising out while examining a rape accused/victim patient, suspected abortion cases, age estimation in civil and criminal cases etc. Forensic pathology trains the students to be capable of making observations and inferring conclusions by logical deductions to aid the investigating agencies in criminal matters. Another integral part of the subject is toxicology, the knowledge of which can be applied to deal with every poisoning case coming to health care facility. The subject teaches both gross and microscopic findings in forensic pathology and toxicology, so that on completion of M.B.B.S. course, the registered medical professional can conduct autopsy in various cases.

2. Vision

- 2.1** To provide excellence in medical education pertaining to the subject of Forensic Medicine & Toxicology and equip the medical graduates to handle medico legal issues during practice.
- 2.2** Involve in various mock drills like court proceedings, crime scene visits etc.
- 2.3** Autopsy to be demonstrated in the State of Art Modern Mortuary Complex.
- 2.4** To engage with hands on activities in Clinical Forensic

3. Goals

The teaching of forensic medicine & toxicology in undergraduate aims at producing physicians who would understand their medicolegal responsibilities in the practice of medicine & uphold medical ethics in high regard. Also, they would acquire knowledge of laws related to medicine & its application in civil and criminal matters related to medico legal issues.

4. Objectives

At the end of the course, the M.B.B.S. student shall be:

- 4.1** Able to understand the basic concept of the subject and its importance.
- 4.2** Aware of all legal components of medical practice while delivering services to the humanity.
- 4.3** Able to perform medico-legal autopsy and draw final opinion (cause, time and if possible manner), based on the findings.
- 4.4** Able to preserve and dispatch relevant articles, trace evidence including viscera in various medico-legal examinations (including autopsy) and hand over the same to appropriate agencies so that chain of custody is maintained.
- 4.5** Able to identify the medico-legal cases and carry out an examination to draw opinion, as per the law of the land.
- 4.6** Aware of delivering his duties and responsibilities (being a registered medical practitioner) by following codes of medical ethics.
- 4.7** Able to diagnose and manage the cases of acute and chronic poisoning and can carry out relevant medico-legal responsibilities in such cases.
- 4.8** Aware of general principles of analytical, environmental, occupational toxicology including toxico-vigilance and predictive toxicology.
- 4.9** Aware of the latest advances in Forensic Medicine & Toxicology and their medico-legal importance.

5. General Instructions to the Student

- 5.1** Students must attend classes regularly and must carry at least 75% attendance individually in theory and practical classes to be eligible for appearing in 2nd professional M.B.B.S. examination.

- 5.2** In the Final Examination of 2nd Professional, 50% of total marks are based on internal assessments, and 50% based on performance in the professional examination.
- 5.3** While in department, he/she must wear white apron. To be attire decently befitting the decorum of a medical professional during attending classes as well as in examinations.
- 5.4** Must bring practical manual while attending practical classes.
- 5.5** Photography of any kind is prohibited in the departmental premises including laboratory, mortuary, and lecture halls.
- 5.6** Mobile phone must be either in silent mode or switched off while attending classes.
- 5.7** While attending mortuary, student must wear all personal protective gears. After completion of session, it must be disposed of as per guidelines.
- 5.8** Students must bring necessary items by their own while attending practical hall, autopsy room and clinical forensic unit.
- 5.9** Strict disciplinary action will be taken against the student who is going to leak medico-legal data in public platform.
- 5.10** Any kind of conduct which breeches discipline during class will not be tolerated

6. Timetable for IInd MBBS

6.1 Third Semester

Day	8-9 AM	9-10 AM	10-11 AM	11AM-12PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM
Monday					Lunch Break			
Tuesday								
Wednesday								
Thursday							FM&T [Practical]	
Friday						FM&T		

						[Theory]		
Saturday								

6.2 Fourth & Fifth Semester

Day	8-9 AM	9-10 AM	10-11 AM	11AM-12PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM
Monday					Lunch Break			
Tuesday								
Wednesday								
Thursday							FM&T [Practical]	
Friday						FM&T [Theory]		
Saturday								

7. Competency Based Undergraduate Curriculum

7.1 Competency wise distribution of chapters

S. No	Competency	Hourly break up	Level K/KH/ SH/P	Domain K=Knowledge S= Skill A=Attitude C=Communication	Suggested teaching learning methods (Lecture/lecture cum demonstration/small group teaching/ practical)	Suggested assessment methods (written/practical/ viva voice)	Integration	
							Horizontal	Vertical
1	Introduction and History	1						
	Definition of Forensic Medicine, State Medicine, Legal Medicine, and Medical Jurisprudence. History of Forensic Medicine	1	KH	K	Lecture, small group discussion	Written/ viva voice	-	-
2	Clinical Forensic Medicine	30						
2.1	Establishment of identity of living persons	3	KH	K, S, A, C	Lecture, small group discussion, bed side clinic, DOAP session	Written/Viva voice/ skill assessment	-	Anatomy
2.2	Mechanical injuries - Abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds, and their medico-legal	5	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSCE/OSPE	-	Gen surgery

	aspects.							
2.3	Regional injuries – Head, Neck, Chest, Abdomen, Limbs, Genital organs, Spinal cord, and skeleton	3	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSCE/OSPE	-	Gen surgery, Orthopedics
2.4	Vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	1	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSCE/OSPE	-	Gen surgery, Orthopedics
2.5	(i) Injuries due to physical agents- heat (heat-hyper-pyrexia, heat stroke, sun stroke, Heat exhaustion, heat cramps), cold (hypothermia, Frostbite, trench foot, Immersion foot) (ii) Describe types of injuries, clinical features, patho-physiology, postmortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations	2	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSCE/OSPE	-	Gen surgery
2.6	Medico-legal aspects of Injuries: Definitions of Injury, Assault and Hurt. Sections of IPC pertaining to	2	KH	K	Lecture, small group discussion	Written/Viva voice	-	Gen surgery, Orthopedics

	injuries. Accidental, Suicidal and Homicidal Injuries, Types of Injuries – Simple, Grievous and Dangerous. Different types of weapons, Dangerous weapons, and their examination. Ante-mortem and Postmortem Injuries, Medico-legal aspects of injuries. Factors influencing healing of wounds, Different legal questions, examination, and certification of wounds, Wound as a cause of death: Primary and Secondary, Dowry death.							
2.7	Firearm injuries, Classification of firearms, Structure and components of various firearms, description of ammunition propellant charge and mechanism of firearms, various terminologies in relation of firearm – caliber, range, choking. Description of different types of cartridges and bullets.	3	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSCE/OSPE	-	Gen surgery, Orthopedics
2.8	Description of wound ballistic, blast	1	KH	K	Lecture, small group	Written/viva voice/	-	Gen surgery,

	injuries and their interpretation. Preservation and dispatch of trace evidence in cases of firearm and blast injuries.				discussion, bed side clinic or autopsy, DOAP session	OSCE/OSPE		Orthopedics
2.9	(i) Virginity and defloration, anatomy of male and female genitalia, Medico-legal importance of hymen, (ii) Medico-legal importance of pregnancy, diagnosis of pregnancy, Superfetation, superfecundation, (iii) Legitimacy and its medico-legal importance, (iv) Disputed paternity and maternity, (v) Medico-legal aspects of delivery, Signs of delivery, Signs of recent and remote delivery in living and dead.	3	KH	K	Lecture, small group discussion	Written/Viva voice	-	OBG
2.10	Impotence, Sterility, Frigidity, Sexual Dysfunction, Premature Ejaculation, Sterilization, Artificial Insemination, Surrogate mother, Delhi Artificial Insemination act 1995.	2	KH	K	Lecture, Small group discussion	Written/Viva voice	-	OBG, Gen medicine
2.11	(i) Definition & types of sexual offences,	4	KH	K	Lecture, small group discussion, bed side	Written/Viva voice/ OSCE	Pathology	OBG, Psychiatry,

	(ii) Rape, (iii) POCSO Act, (iv) Adultery, Unnatural Sexual offences, (v) Sexual perversions, (vi) Abortion, MTP act 1971, Criminal abortion, Evidence of abortion-Living and Dead, Duties of doctor in cases of abortion.				clinic, DOAP session			AETCOM
2.12	Hazards and medicolegal aspects of Blood transfusion.	1	KH	K	Lecture	Written/Viva voice	-	Transfusion-Medicine
3	Forensic Pathology	17						
3.1	Thanatology: Definition of death, Types of death – Somatic/Clinical/Cellular, Molecular and Brain death including cortical death and Brainstem death, Natural and Unnatural death, Suspended animation, Moment of death, Modes of death – Coma, Syncope and Asphyxia, Presumption of death and Survivorship and Sudden death.	2	KH	K	Lecture, small group discussion	Written/Viva voice	Pathology	
3.2	(i) Description of signs of death. Post-mortem changes after death –	5	KH/SH	K,A,C	Lecture, small group discussion, autopsy,	Written/Viva voice/OSPE	Pathology, Pharmacolo	Biochemistry

	cooling of dead body, postmortem lividity, rigor mortis, cadaveric spasm, heat and cold stiffening, putrefaction, mummification, adipocere formation maceration and preservation of dead bodies. (ii) Estimation of time since death on postmortem examination. (iii) Postmortem examination and preservation of viscera and other samples (for various reasons)				DOAP session		gy	
3.3	Examination of mutilated bodies or fragments, bundle of bones and exhumation	1	KH	K	Lecture, small group discussion, DOAP session	Written/Viva voice/ OSPE	-	-
3.4	Definition and classification of asphyxia, medico-legal interpretation of postmortem findings in asphyxial deaths.	1	KH	K	Lecture, small group discussion, autopsy, DOAP session	Written/Viva voice/ OSPE	-	-
3.5	(i) Hanging and strangulation, (ii) Traumatic asphyxia, Suffocation, smothering, sexual asphyxia, Café coronary	3	KH	K	Lecture, small group discussion, autopsy, DOAP session	Written/Viva voice/ OSPE	-	-
3.6	Drowning	2	KH	K	Lecture, small group discussion, autopsy,	Written/Viva voice/ OSPE	-	-

					DOAP session			
3.7	Starvation and neglect.	1	KH	K	Lecture, small group discussion	Written/Viva voice	-	-
3.8	Infanticide, foeticide, and stillbirth.	2	KH	K	Lecture, small group discussion, autopsy, DOAP session	Written/Viva voice/ OSCE	-	Pediatrics, Anatomy
4	Medical Jurisprudence	15						
4.1	(i) Criminal procedure code, Criminal cases, Civil cases, Definition of Inquest, Different types of inquest - police inquest, magistrate's inquest. Cognizable and non-cognizable offences, (ii) Different types of courts in India and their powers – Supreme Court, High Court, Session Court, Magistrate's court, (iii) Court procedures: Summons, oath, affirmation, conduct money, types of witnesses. Examination in chief, Cross examination, Re-examination, court questions, (iv) Evidence – Oral, Documentary, Medical evidence, Medical	4	KH	K,A,C	Lecture, Small group discussion, Mock court, court visit, role play	Written/Viva voice	AETCOM	-

	Certificate, dying declaration, Dying deposition, (v) Conduct of a doctor in witness box							
4.2	(i) Medical council of India, state medical councils, (ii) Their functions and disciplinary control, Indian Medical Register, (iii) Rights and privileges of medical practitioner, infamous conduct, Professional Secrecy, Privileged communication, (iv) Code of medical ethics, unethical practices, dichotomy, medical records, (v) Malpractice - Civil, Criminal; Medical negligence, vicarious liability, Res ipsa loquitor, Contributory Negligence, Malingering, Therapeutic Misadventure, Corporate negligence, Products liability, Medical Indemnity Insurance. (vi) Consent, Therapeutic Privilege,	6	KH	K	Lecture, small group discussion	Written/Viva voice	AETCOM	-

	Rules of Consent							
4.3	(i) IPC related to medical Practice, (ii) consumer protection act, (iii) PCPNDT act, (iv) Human organ transplantation act	2	KH	K	Lecture, small group discussion	Written/Viva voice	-	AETCOM
4.4	(i) Domestic violence, (ii) Violation of Human rights, NHRC and Doctors,	1	KH	K	Lecture, small group discussion	Written/Viva voice	-	AETCOM
4.5	(i) ESI Act, Workman's Compensation Act, (ii) Doctors and media (iii) Human Experimentation	1	KH	K	Lecture, small group discussion	Written/Viva voice	Pharmacology	AETCOM
4.6	(i) Ethics related to HIV patients (ii) Euthanasia.	1	KH	K	Lecture, small group discussion	Written/Viva voice	Pharmacology	AETCOM
5	Forensic Psychiatry	4						

5.1	Definition, Various types of mental disorder, Lucid interval, Classification of mental disorder, mental sub-normality, Diagnosis of Insanity and Feigned insanity, Restraint, admission and discharge of Insane in accordance to THE MENTAL HEALTHCARE ACT, 2017, Mental disorder and	4	KH	K	Lecture, small group discussion	Written/Viva voice	-	Psychiatry, Gen medicine

	responsibility-Civil and Criminal responsibility, Testamentary Capacity, Mc Naughten's rule.							
6	Forensic Sciences	3						
6.1	Definition of DNA fingerprinting, Techniques of DNA Fingerprinting, Application of DNA profiling in Forensic Medicine, HLA typing.	1	KH	K	Lecture, small group discussion	Written/Viva voice	-	Biochemistry
6.2	Locard's principle of exchange, Blood and Seminal stains (Physical, microscopic, chemical and serological test, blood grouping) and their medico-legal aspects, Saliva, vaginal fluid, fecal and urinary stain, examination of skin, nail, tooth pulp and other body fluids group specific substances.	1	KH	K	Lecture, small group discussion	Written/Viva voice	Pathology	-
6.3	Narcoanalysis, brain mapping	1	KH	K	Lecture, small group discussion	Written/Viva voice	-	Psychiatry
7	General Toxicology	6						
7.1	(i) History and definitions, (ii) Laws in relation to poisons, Medico-legal aspects of poisons, (iii) Classification of poisons,	6	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSPE/OSCE	Pharmacology	Gen medicine

	Toxicokinetics and Toxicodynamics, (iv) Diagnosis of poisoning in living and dead, (v) General principles of management of poisoning, Antidotes and its types, (vi) Medicolegal autopsy in cases of poisoning, preservation and dispatch of viscera for chemical analysis.							
8	Clinical Toxicology	22						
8.1	(i) Corrosive poisons – sulphuric acid, phenol, oxalic acid, nitric acid, hydrochloric acid, organic acids and alkalies. (ii) Irritant non-metallic poisons- Phosphorus, Halogens, miscellaneous preparation & mechanical irritants. (iii) Agricultural poisons - Classification and description of common insecticides and pesticides used in India - Organophosphorous, Organochlorine compounds, Aluminium Phosphide. (iv) Metallic poison - arsenic, lead,	22	KH	K	Lecture, small group discussion, bed side clinic or autopsy, DOAP session	Written/Viva voice/ OSPE/OSCE	Pharmacology	Gen medicine

iron, copper, zinc, thallium. (v) Animal poisons – snake bite, scorpion sting, wasp, bee, cantharides, ichthyotoxicosis. (vi) Somniferous poisons – opium & its derivatives, synthetic preparations, pethidine & codeine. (vii) Deliriant poisons – Dhatura, hemlock, cannabis, LSD, mescaline & cocaine. (viii) Spinal & peripheral nerve poisons – strychnine, curare. (ix) Domestic poisons – kerosene, cleansing agents, disinfectants, household medicines. (x) Barbiturate poisoning, drug abuse & common drug overdoses. (xi) Vegetable poisons – abrus, ricinus, croton, ergot, capsicum, camphor, argemone, lathyrus & calotropis. (xii) Alcohol poisoning (ethyl & methyl alcohol) and drunkenness, its medico-legal aspects							

	&benzodiazepine poisoning. (xiii) Cardiac poisons – HCN, aconite, tobacco, quinine, digitalis & oleander. (xiv) Asphyxiant poisons – carbon monoxide, carbon dioxide, hydrogen sulphide, phosgene, and phosphine. (xv) Definition of food adulteration. Names of common adulterants and general methods of detection for food adulterants, Common poisonous foods - Botulism, Chemical Poisoning, Poisonous Mushrooms, and epidemic dropsy.							
9	Environmental Toxicology	1						
9.1	(i) Description of toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry. (ii) Description and medico-legal aspects of poisoning in Workman's Compensation Act.	1	KH	K	Lecture, small group discussion	Written/Viva voice	-	Gen medicine
10	Analytical Toxicology	1						
10.1	General principles of analytical	1	KH	K	Lecture, small group	Written/Viva voice	-	-

	toxicology and its application in management, prevention, and control of poisoning. Basic principles of functioning of Gas Liquid Chromatography, Thin Layer Chromatography, Spectrophotometer, Atomic Absorption Spectrophotometer, Neutron Activation Analysis, Mass spectrometry, alcometer.				discussion			
11	Skill in Forensic Medicine & Toxicology	60						
11.1	Consent for various purposes in medical practice.	1	SH	S	Small group discussion, lecture	Logbook/Viva voice	-	-
11.2	Examination of a person for illness and fitness and certification thereof	1	SH	S	Small group discussion, bed side clinics, lecture	Logbook/Viva voice	-	-
11.3	Articulation of opinion regarding cause of death and preparation of certificate of cause of death (MCCD)	1	SH	S	Small group discussion, lecture	Logbook/Viva voice	-	-
11.4	Examine and preparation a Medico-legal report of an injured person with different etiologies.	3	KH/SH	S	Bed side clinic (ward/ casualty), Small group discussion	Logbook/Skill station/Viva voice/ OSCE	-	-

11.5	Estimation age of a person for medico-legal and other purposes.	3	KH/SH	S	Small group discussion, demonstration	Logbook/Skill station/Viva voice/ OSCE	-	-
11.6	Observe & prepare postmortem examination report in a case of suspected poisoning.	2	KH	S	Small group discussion, autopsy, DOAP session	Logbook/Skill station/Viva voice/ OSCE	-	-
11.7	Preservation & dispatch of viscera for chemical analysis.	1	KH/SH	S	Small group discussion, DOAP session	Logbook/Skill lab/Viva voice	-	-
11.8	Observe & prepare postmortem report in a case of death due to violence of any nature – road accident, fall from height, assault, factory accident, electrocution, burns & accident due to any other cause, firearm injury, asphyxia, natural death & medical negligence. At least 10 postmortem reports should have been written by the student	10	KH/SH	S	Small group discussion, autopsy, DOAP session	Logbook/Skill station/Viva voice/ OSCE	-	-
11.9	Demonstration, interpretation, and medico-legal aspects from examination of hair (human & animal) fiber, semen & other biological fluids	1	KH/SH	S	Small group discussion, lecture	Logbook/Skill station/Viva voice/ OSCE	-	-

11.10	Demonstration & identification of a particular stain as blood and identification of its species origin, Identification ABO & RH blood groups of a person.	1	KH/SH	S	Small group discussion, lecture, DOAP session	Logbook/Skill station/Viva voice	Pathology	Physiology
11.11	Examination & drawing opinion from examination of skeletal remains	4	KH/SH	S	Small group discussion, lecture, DOAP session	Logbook/Skill station/Viva voice	-	-
11.12	Identification & drawing medico-legal inference from various specimen of injuries e.g., contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of a bone	6	SH/P	S	Small group discussion, DOAP session	Log book/Skill station/Viva voice/ OSPE	-	-
11.13	Identification & description of weapons of medico-legal importance commonly used e.g., lathi, knife, kirpan, axe, gandasa, gupti, farsha, dagger, bhalli, razor, hockey stick etc.	2	KH/SH	S	Small group discussion, DOAP session	Logbook/Skill station/Viva voice/ OSPE	-	-
11.14	Description of the contents and structure of bullet & cartridges used & medico-legal interpretation drawn	2	KH/SH	S	Small group discussion, DOAP session	Logbook/Skill station/Viva voice	-	-
11.15	Estimation of age of foetus by	2	K/KH	S	Small group	Theory/ Clinical	-	-

	postmortem examination				discussion, DOAP session	assessment/Viva voice		
11.16	Examination & preparation of report of an alleged accused in a rape/unnatural sexual offence	2	K/KH	S	Small group discussion, DOAP session	Logbook/Skill station/Viva voice/ OSCE	-	-
11.17	Examination & preparation of medico-legal report of a victim of sexual offence/ unnatural sexual offence.	2	KH/SH	S	Small group discussion, DOAP session	Logbook/Skill station/Viva voice/ OSCE	-	-
11.18	Examination and preparation of medico-legal report of drunkenness.	2	KH	S	Small group discussion, bed side clinic, DOAP session	Logbook/Skill station/Viva voice/ OSCE	-	-
11.19	Demonstration of the common instrument used in analysis of poison & DNA profile – TLC, GLC, AAS.	1	KH	S	Small group discussion, demonstration	Logbook/Skill station/Viva voice	-	-
11.20	Basic Toxicology Life Support for dealing with Toxicologic Emergencies	2	KH	S	Small group discussion, bed side clinic, DOAP session	Logbook/Skill station/Viva voice	-	-

11.21	Identification & drawing of medico-legal inference from common poisons e.g., dhatuira, castor, cannabis, opium, aconite, copper sulphate, pesticides compounds, marking nut, oleander, nux vomica, abrus seeds,	6	KH	K	Small group discussion, DOAP session	Logbook/Viva voice	-	-

	snakes, capsicum, calotropis, lead compounds & tobacco.							
11.22	Examination & preparation of a medico-legal report of a person brought for medical examination in cases pertaining to police, judicial custody or referred by court of law and violation of human rights as requirement of NHRC.	2	KH	S	Small group discussion, DOAP session	Logbook/Skill station/Viva voice/OSCE	-	-
11.23	Identification & drawing of medico-legal inference from microscopy slides of soot particles, diatoms, hairs, fibers, blood stains, etc.	2	KH	S	Small group discussion, lecture	Logbook/Skill station/Viva voice	-	-
11.24	Visit to Courts as and when feasible/Mock courts	1	KH/SH	S	Small group discussion, lecture, DOAP session, role play, court visit	Logbook/Viva voice/OSCE	-	-

Total teaching Hours: 160 hours [**Theory- 100 hours and Practical- 60 hours**]

7.2 Semester Wise Topic Distribution with Teaching hours

Third Semester [Theory]	Total hours[Approximately]
• Introduction and definitions • Legal Procedures • Identification • Medico legal Autopsy • Thanatology, brain stem death • Changes after death post-mortem artefacts • Injuries classification and medico legal aspects • General toxicology	40
Fourth Semester [Theory and Practical]	Total hours
• Medical ethics and Law • Mechanical injuries • Firearm Injuries • Regional Injuries • Thermal Injuries, Explosion injuries • Electrical Lightning and radiation injuries • Death associated with surgical procedure and anaesthesia • Starvation	70

• Asphyxial deaths • Autopsy Demonstration • Organic irritant poisons- Plant& Animal • Agricultural poisons • Metallic irritant poisons • CNS depressant poisons including alcohol • Non-metallic and mechanical irritants	
Fifth Semester [Theory and Practical]	Total hours
• Impotence and sterility • Virginity, pregnancy and delivery • Sexual offences • Abortion • Infant deaths , battered baby syndrome • Forensic psychiatry • Forensic Science laboratory • Deliriant poisons • Spinal poisons • Cardiac poisons • Asphyxiants toxic gases • Food poisoning • Drug abuse, dependence • Somniferous poisons • Salicylates, paracetamol & insulin	50

8. Assessment

8.1 Marks distribution & Examination Pattern

	Pre-Professional Exam	Professional Exam
No. of papers	1	1
Marks per paper	100	100
Time per paper	3 hours	3 hours
No. of sections for per paper	Objective: Section-A (MCQ) Subjective: Section B and C	Objective: Section-A (MCQ) Subjective: Section B and C
Marks distribution per paper	Section A – 20 marks Section B – 40 marks Section C – 40 marks	Section A – 20 marks Section B – 40 marks Section C – 40 marks
Type of Questions	1. MCQs – Single best response type, Assertion & Reasoning, True &False, Cross matching 2. Long Answer Questions 3. Short answer Questions	1. MCQs – Single best response type, Assertion & Reasoning, True &False, Cross matching 2. Long Answer Questions 3. Short answer Questions
Total Marks	100	100
Practical Examination	Spotter – 20 Marks	Spotter – 20 Marks
	Long Case - 15 marks Examination of Victim/Accused of Sexual Offence- 15marks	Long Case - 15 marks Examination of Victim/Accused of Sexual Offence- 15marks
	Short cases – 20 marks	Short cases – 20 marks
	Viva – 20 marks	Viva – 20 marks
	Record- 10 marks	Record- 10 marks
Total Marks	100	100

8.2 Theory examination: Paper Pattern & Marks distribution

Internal assessment- 50 Marks

Professional Theory Examination- 100 Marks (single paper) consolidated to 50Marks.

Sections	Question type	Number of Questions	Marks per question	Total marks
Section A MCQ	Multiple Choice Questions	20	1 mark	20 marks
Section B Clinical Forensic Medicine - Identification, Traumatology [Mechanical and regional injuries with ML issues], Sexual Jurisprudence [Impotence & sterility, Virginity-pregnancy-delivery, Sexual offences, Abortion] Forensic Pathology - Thanatology, Medico-legal autopsy, Thermal deaths, Mechanical asphyxia, Infant deaths, Starvation	Long Answer Questions	01	10 marks	10 marks
	Short Answer Questions	06	5 marks	30 marks
Section C Medical Jurisprudence, Forensic Psychiatry, Forensic Science, Toxicology- (General, Clinical, Environmental, Analytical)	Long Answer Questions	01	10 marks	10 marks
	Short Answer Questions	06	5 marks	30 marks

8.3 Chapter wise distribution of marks

Topics	MCQs	LAQs	SAQs	Total
Forensic Pathology (Identification, Thanatology, Medico-legal autopsy, Thermal deaths, Mechanical asphyxia, Infant deaths, Starvation)	06	10	15	31
Sexual Jurisprudence	04	-	10	14
Traumatology	03	-	05	8
Legal Procedure and Medical Jurisprudence	03	-	15	18
Forensic Psychiatry	01	-	05	06
Toxicology	03	10	05	18
Forensic science	-	-	05	5
Total	20	20	60	100

8.4 Marks distribution for Practical examination: Total marks- 100

Internal assessment- 50 Marks

Professional Practical Examination- 100 marks consolidated to 50marks

S.No	Title	Marks
1	Written Exercise - Long Case (Injury Certificate/Age Estimation/Cluster of Bone Examination/Drunkenness) - Examination of Victim/Accused of Sexual Offence - Short cases – 4(Sickness/fitness, MCCD, PM report, Toxicology,etc.)	50 marks 1 X 15 = 15 1 X 15 = 15 4X 05 = 20
2	Spotters	20 marks 10 X 2= 20
3	Viva Voice	20marks
4	Practical Manual/ Record	10 marks

Grand Total	100 Marks

9. Model question paper

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY

SECTION A

Duration: 20 minutes

Marks 20X1=20

1. Professional death sentence is:

A. Imprisonment for life B. Rigorous imprisonment C. Erasing of name from the medical register D. Death by hanging

2. Sec. 176 CrPC is related to:

A. Coroner inquest B. Summons C. Police inquest D. Magistrate inquest

3. Corpus delicti means:

A. Proof of occurrence of crime B. Decomposed body C. Identification of dead person D. None

4. Preservative used for blood:

A. Sodium fluoride B. Thymol C. Potassium oxalate D. No preservative is needed

5. The suit for medical negligence must be filed in civil court within

A. 1 month B. 45 days C. 2 years D. no time limit

6. Casper's dictum for rate of decomposition in air: water: buried bodies is:

A. 8:4:1 B. 4:2:1 C. 1:2:4 D. 1:4:8

7. Sec 44 IPC defines:

A. Injury B. Hurt C. Grievous hurt D. Assault

8. **Leathery stomach is seen in poisoning with:**

- A. HCL B. H_2SO_4 C. Carbolic acid D. Oxalic acid

9. **Pond's fractures are common in:**

- A. Children B. Adolescent C. Adult D. Old age

10. **Pugilistic attitude is due to:**

- A. Lipolysis B. Protein coagulation C. Carbohydrate coagulation D. Lipogenesis

11. **Assertion: Range of shot can be determined by the spread of pellets**

Reason: Shotgun cartridge contains pellets

- A. Both assertion and reasons are independently true, and the reason is the correct explanation for the assertion.
B. Both assertion and reason are independently true, but the reason is not the correct explanation of the assertion.
C. Assertion is independently true but the reason is independently false.
D. Assertion is independently false but the reason is independently true.

12. **Spalding sign is seen in:**

- A. Abortion B. Stillbirth C. Intrauterine death D. Infanticide

13. **Barrier method is:**

- A. Oral contraceptive pill B. Intrauterine devices C. Spermicidal D. Tubectomy

14. **Order in lochia:**

- A. Serosa, rubra, alba B. Rubra, serosa, alba C. Alba, rubra, serosa D. Rubra, alba, serosa

15. **Statutory rape is:**

- A. Rape of an insane woman B. Rape of another person's wife C. Rape in police custody D. Rape of < 18 years old girl

16. **Voyeurism is also known as:**

A. Scopophilia B. Eonism C. Frotteurism D. Onanism

17. Repetitive hand washing is a symptom of:

A. Post-traumatic stress disorder B. Depression C. Anorexia nervosa D.
Obsessive compulsive disorder

18. Gastric lavage is contraindicated in the following:

A. Barbiturate poisoning B. Kerosene poisoning C. Paracetamol poisoning D.
Carbolic acid

19. Amotivational syndrome is seen with:

A. Heroin B. Cannabis C. Cocaine D. Clonidine

20. Match the following strangulation methods accordingly:

1. Mugging
2. Garroting
3. Bandedola
4. Throttling

- I. Hands
- II. Bamboo sticks
- III. Rope twisted using a stick
- IV. Bend of elbows

- A. 1-III, 2-IV, 3-I, 4-II
- B. 1-III, 2-I, 3-II, 4-IV
- C. 1-IV, 2-III, 3-II, 4-I
- D. 1-III, 2-II, 3-I, 4-IV

SECTION – B

(Clinical Forensic Medicine, Forensic Pathology)

Duration: 2 hours 40minutes

Max. Marks: 80

Instructions- 1. Answer all questions.

2. Illustrate answers with suitable diagrams & clinical significance wherever necessary.

I. Long Answer Question 1x10 = 10 marks

- a. Enumerate various postmortem changes seen at a post-mortem interval of 24 to 36 hours.
- b. Explain the mechanism of adipocere formation and its medicolegal importance.

II. Short Answer Questions 6x5 = 30marks

- a. Traumatic Asphyxia
- b. Enumerate the types of skull fractures.
- c. Outline the procedure for super imposition and mention the medicolegal importance.
- d. What is criminal abortion? Write a note on indication for MTP
- e. What are the various trace evidence you will collect while examining a victim of penetrative sexual assault?
- f. Suspended animation

SECTION – C

**(Medical Jurisprudence, Forensic Psychiatry, Forensic Sciences, Toxicology – General,
Clinical, Environmental, Analytical)**

I. Long Answer Question

1x10 = 10marks

What is the mechanism of action, signs and symptoms, treatment and post mortem findings of carbon monoxide poisoning?

II. Short Notes

6x5 = 30marks

- a. Differentiate between Executive Magistrate inquest and Judicial Magistrate inquest.
- b. Components of medical negligence and briefly describe the defenses against medical negligence.
- c. Define dying declaration. Explain the procedure of recording dying declaration.
- d. Delusional disorder and its types.
- e. Chronic mercury poisoning
- f. Legal and ethical issue related to Narcoanalysis

9. Suggested Textbooks

9.1 Core Books

1. Reddy KSN, Murty OP. The Essentials of Forensic Medicine & Toxicology, 35th ed., 2022. Published by-Jaypee Brothers Medical Publishers (P) Ltd.
2. Anil Aggarwal. Forensic Medicine and Toxicology. 2nd ed., 2021. Published by Avichal Publishing Company.
3. Vij K. Textbook of Forensic Medicine & Toxicology - Principles and Practice, 6th ed., 2014. Published by Elsevier India.
4. Biswas Gautam. Review of Forensic Medicine and Toxicology (Including Clinical & Pathological Aspects), 5th ed., 2021. Published by-Jaypee Brothers Medical Publishers (P) Ltd.
5. Rajesh Bardale. Principles of Forensic Medicine and Toxicology, 3rd ed., 2021. Published by-Jaypee Brothers Medical Publishers (P) Ltd
6. Pillay VV (Ed). Textbook of Forensic Medicine & Toxicology. 19th ed., 2019. Published by Paras Medical Publisher, Hyderabad, India.
7. Shankar M Bakkannavar. Forensic Medicine & Toxicology Practical Manual. 1st ed., 2018. Published by Elsevier India
8. B.V. Subrahmanyam. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 8th ed., 2019. Published by CBS Publishers.

9.2 Reference Books

1. Kannan K, (Ed.). Modi - A Textbook of Medical Jurisprudence and Toxicology. 27th edition, 2021. Published by Lexis Nexis (A division of Reed Elsevier India Pvt Ltd), India.
2. Saukko&Pekka. Knight's Forensic Pathology. 4th ed., 2015. Published by CRC Press.
3. DiMaio& Vincent JM. Forensic Pathology. 2nd ed., 2001. Published by CRC Press.
4. Pillay VV. Modern Medical Toxicology. 4th ed., 2013. Published by Jaypee Brothers Medical Publishers (P) Ltd.
5. Jason Payne-James (Editor), Richard Jones (Editor). Simpson's Forensic Medicine. 14th ed., 2019. Published by CRC Press.
6. Charles Catanese. Color Atlas of Forensic Medicine and Pathology. 2nd ed., 2016. Published by CRC Press.
7. Brenda L. Waters. Handbook of Autopsy Practice Paperback. 4th ed., 2010. Published by Humana Press.

10. Contact details of Faculty in Department of Forensic Medicine & Toxicology

S. No.	Name	Designation	Mobile numbers	Email Id
1.	Dr. Senthil Kumaran M	Associate Professor	8940355577	drsenthilkumaran84@gmail.com
2.	Dr. Gerard Pradeep Devnath	Assistant Professor	9442934927	drgerardfm@gmail.com

DEPARTMENT OF MICROBIOLOGY

Introduction:

Medical Microbiology is that discipline in the medical sciences, that deals with microbes encompassing bacteria, viruses, fungi and parasites causing various diseases. The mankind has recently and at regular interval have witnessed the emergence and reemergence of infectious diseases which were previously unheard of. Clinical microbiology, through its conventional as well as modern diagnostic methods is at the fore front in imparting patient care, research, medical education and Infectious Diseases (ID) prevention and control. The foundations of modern molecular biology and genetics also rest on research carried out within microbiology.

Vision Statement:

Department of Microbiology will lead the transformation of health care through quality diagnosis, infection prevention and control (IPC) , innovation and education and make AIIMS, Madurai (Tamil Nadu) one of the nation's best quality patient care institutions.

Goals:

To set up a state-of-the-art department of clinical microbiology that will move the central dogma of infectious disease diagnosis from bench side to bed side.

Core values:

- Excellence that is reflected in the innovative conduct and advancement of education through competency-based education for undergraduate students and making them to competent in diagnosis and management of common infectious diseases in the community.
- Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems by learning must know areas of infectious and inflammatory diseases.
- Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area in medical Microbiology, action research and documentation skills.

- Be familiar with the basic factors which are essential for the implementation of the National Health programs including practical aspects of the following:
 1. National Tuberculosis Elimination Program – NTEP (formerly RNTCP)
 2. Integrated Counseling and testing Centre for HIV infections – ICTC
 3. Hospital Infection Control
 4. Antibiotic Policy
 5. Immunization
 6. Biomedical Waste Management

- Teaching integrity that embraces the very highest standards of ethical behavior and exemplary moral character through cooperation that is manifested by collegial communication, integrated teaching, inter/intra departmental collaboration and participation in national level education events

- Acquire basic management skills in the area of laboratory investigations of Systemic infections, Immunology, sexually transmitted infections, zoonotic diseases and the interpretation of the above test results.

- Demonstration of correct procedures of sample collections for investigations and various microbiological techniques in mannequins.
- Develop skills in identifying community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- Be able to work as a leading partner in health care teams and acquire proficiency in communication skills and competent to work in a variety of health care settings.
- Have personal characteristics and attitude required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.
- Develop competence in prevention and control of infectious diseases in hospital and community

Infection Prevention and control guidelines on COVID-19:

Infection Control Practices during Theory Class, Practical Class when dealing Patients with Non-Covid symptoms

- History and examination should be done only if it is absolutely required and directed by faculty under direct supervision.
- Students are advised not to deal with patients on their own in the absence of faculty.
- All general precautions stated above should be strictly adhered to.
- Only one student can elicit history or examine at a time.
- Students are advised to use Mask, face shield and gloves during examination.
- All instruments used in examination like stethoscope or knee hammer or inch tape should be disinfected after use as per the SOP of AIIMS, MDU

When Dealing with Suspected Covid /Probable Covid/Confirmed Covid Patients

- Students are strictly advised NOT to elicit history or examine COVID suspect /probable COVID/ Confirmed COVID patients.
- If examination of COVID suspect/ probable or confirmed case is absolutely necessary as decided by a faculty, students are advised to use Personal protective equipment (PPE) and follow all the guidelines mentioned in the SOP of AIIMS, MDU regarding dealing with COVID-19 patients.
- Hand hygiene: Use any soap and water or 70 % alcohol-based hand rubs. Students are encouraged to carry their own hand sanitizers.
- Wearing a face mask is mandatory for all students who are attending theory classes.
- Social Distancing: The seating arrangements should be made wherein at least 2-meter diameter distance should be there between two chairs. A suitable, well-ventilated area with large space to accommodate this seating arrangement should be used for theory classes.
- Any student who is COVID positive or COVID suspect or having any symptoms suggestive of COVID or with history of COVID contact or recent travel should inform authorities (Warden /Associate Dean) immediately. They can attend classes only after being cleared by the COVID19 Clinical management team of AIIMS, Madurai.
- Students should avoid crowding of closed crowded spaces.

- Maintain distance of at least 1 meter from any individual with respiratory symptoms (e.g., coughing, sneezing). If coughing or sneezing, cover nose and mouth with flexed elbow or paper tissue, dispose-off tissue immediately after use and perform hand hygiene.
- Students should refrain from touching mouth and nose.

Preventive Measures to be followed while attending examinations to contain spread of Covid-19

Generic Preventive Measures

- Physical distancing of at least 6 feet to be followed as far as feasible.
- Use of face covers/masks to be made mandatory.
- Practice frequent hand washing with soap (for at least 40-60 seconds) even when hands are not visibly dirty.
- Use of alcohol-based hand sanitizers (for at least 20 seconds) can be made wherever feasible.
- Respiratory etiquette to be strictly followed. This involves strict practice of covering one's mouth and nose while coughing/sneezing with a tissue/handkerchief/flexed elbow and disposing off used tissues properly.
- Self-monitoring of health by all and reporting any illness at the earliest.
- Spitting shall be strictly prohibited.

Instructions for the Students to be followed in Microbiology Laboratory

A. Biosafety caution:

Throughout this course the student will be working with potentially pathogenic organisms and infectious materials. These can not only infect the students but can also get transmitted to their homes and belongings. Hence the students are strictly advised to follow biosafety precautions while working in the Microbiology laboratory.

B. Rules To Be Followed In The Department

- No student should be absent during internal/university theory and practical examinations.
- Be punctual in attending classes.
- Students must carry record notebook and observation book to the practical hall regularly.
- Students must carry hematoxylin, eosin pencils and lead pencils for diagram.
- Students must complete the record and get it duly signed from the faculty on the next practical hour.

C. General instructions:

1. The student must arrive for practical on time.
2. Hands should be washed properly before and after each task.
3. Please bring along a white apron, black lead pencils, hematoxylin, eosin pencils, a six-inch plastic ruler, and a blue pen along with this practical book for every practical class.
4. Please read the practical protocol, theory and any additional material provided to you through the Microbiology Google Classroom before arriving for the practical class.
5. Students should wear aprons or laboratory gown to avoid dyes and chemical damage to skin and clothes.
6. Please be attentive in the practical class. The specimens and material shown in the practical may not be shown again.
7. All clinical samples should be considered infectious and potentially harmful.
8. Only closed toe shoes are to be allowed in the laboratory.
9. Application of cosmetics in laboratory is prohibited.
10. Eating and drinking is not allowed in the laboratory.
11. Do not put pen and pencils in the mouth to avoid transmission of infection through fomites.
12. Hair should be tied properly.
13. Students' personal belongings to be kept in shelves and drawers as per instructions given by the faculties.

14. The work area should be cleaned using disinfectants like alcohol.
15. Microbial cultures should be handled properly and should not be taken out of laboratory.
16. Mouth pipette should be avoided and mechanical devices to be used.
17. Label all materials with appropriate details.
18. Infectious/virulent material to be handled with gloves and masks.
19. Wear gloves for potential contact with blood and body fluids.
20. Wear mask for contagious respiratory infections like Tuberculosis.
21. All disposable items must be discarded as per biomedical waste disposal rules
 - a. Yellow: all infectious waste
 - b. Red: Recyclable disposable infectious waste.
 - c. Blue puncture proof container: Broken Glassware.
 - d. White puncture proof container: Sharps.
22. All the laboratory instruments should be operated as per standard operating procedure.
23. Careful handling of Bunsen burner, hot air oven and autoclave.
24. Needle stick injury or injury by broken glassware to be reported immediately.
25. Only those experiments that are permitted in the laboratory should be carried out.
26. Alcohol to be kept away from flame.
27. Microscopes to be handled carefully without removing any part of the microscope.
28. Follow all the instructions given above and you will be safe from biohazards both chemical and physical.

D. Use And Maintenance Of Microscope

1. The microscopes provided to you are expensive instruments and should be handled with care.
2. Please do not remove the microscope from the bench at any time.
3. Please wipe clean the oil immersion and other objective lens with the tissue paper provided on your bench. Switch off the microscope and return the low power objective back in focus.
4. Do not apply xylol on any of the microscope lenses.
5. Please inform the instructor or laboratory staff in case you face any problems with the microscope.

MBBS Curriculum: Semesters: III, IV, V

Outcomes for MBBS Course

Goal:

The goal of the Medical Microbiology curriculum is to enable medical undergraduates to imbibe the knowledge and skills required to diagnose, manage and prevent various infectious diseases and immune disorders, both in the hospital and field settings.

Objectives:

a. Knowledge

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

State the infective micro-organisms such as bacteria, mycobacterium, viruses, fungi, and parasites of the human body and describe their morphology and host parasite relationship.

1. Classification of pathogenic micro-organisms and describe the pathogenesis of the diseases produced by them.
2. State or indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.
3. Describe the mechanisms of immunity to infection.
4. Acquire knowledge on culture media, methods and biochemical tests used in laboratory diagnosis of infections.
5. Acquire knowledge on suitable antimicrobial agents based on their resistance and susceptibility pattern for treatment of infection and scope of immunotherapy and different vaccine available for prevention of communicable diseases.
6. Apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
7. Describe the drug resistant mechanisms and the mode of spread in hospital acquired infections.
8. Know the nature of emerging and reemerging infectious agents.
9. Recommend laboratory investigations regarding bacteriological examination of food, water, milk and air.

b. Skills

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

- i. Apply universal safety precautions required for working in a Microbiology laboratory.
- ii. Identify different infectious diseases and their causative microorganisms.
- iii. Apply different methods of disinfection and sterilization required for preventing hospital and community acquired infections.
- iv. Apply the appropriate methods of collection, storage and transport of patient samples for microbiological investigations.

- v. Identify various medically important microorganisms using direct microscopy, microbial culture, biochemical reactions, serology and molecular tests.
- vi. Interpret various microbiology laboratory investigations and correlate the results with the clinical presentation of the patients.
- vii. Employ suitable antimicrobial panels for antimicrobial sensitivity testing of different microorganisms as per the guidelines laid down by the Clinical & Laboratory Standards Institute (CLSI).
- viii. Identify the etiological infectious agents in correlation with the clinical manifestations with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
- ix. Plan, perform and interpret laboratory investigations for the diagnosis of infectious diseases and immunological disorders
- x. Perform independently the appropriate biomedical waste disposal according to the biomedical waste management protocol
- xi. Involve and participate in the national health programs and plan investigations and precautionary measures during disaster management.
- xii. Follow antimicrobial stewardship in a hospital setting and apply it in clinical practice.
- xiii. Follow and implement the national biomedical waste management guidelines required for hospital and environment safety.
- xiv. Discuss about infectious disease outbreaks and how to prevent them.
- xv. Follow and implement the national immunization schedule.
- xvi. Follow antimicrobial stewardship in a hospital setting and apply it in clinical practice.
- xvii. Follow and implement the national biomedical waste management guidelines required for hospital and environment safety.
- xviii. Follow up about infectious disease outbreaks and how to action plan for the prevention.
- xix. Follow and implement the national immunization schedule.

Competencies:

- I. Medical expertise in laboratory medicine by performing undergraduate level must know diagnostic tests.
- II. Communication skill during group activities.
- III. Collaboration with team members during seminar presentation.
- IV. Self-directed learning (SDL) through flipped classes.
- V. Professionalism.
- VI. Health advocacy.
- VII. Leadership and Scholarship

Guidelines for Implementation:

A. *Guidelines for Teaching-Learning*

- i. Didactic lectures to include active learning strategies.
- ii. Flipped classes to promote self-directed learning.
- iii. Case based learning and problem-based learning to emphasize individual learning of skills.
- iv. Practical to emphasize individual learning of skills.
- v. Skills laboratory to be used for skills learning.
- vi. E-learning. Peer assisted learning to be promoted through group discussions.
- vii. Integrated teaching – Horizontal and vertical.
- viii. Student seminar presentation under observation.

B. *Guidelines for Assessment*

- i. Skills to be assessed and certified in skills lab and in practical and clinical sessions using performance criteria.
- ii. Assessment methods to include assignments, projects, portfolios, MCQs, OSPE and OSCE.

C. *Programme Evaluation*

Programme evaluation to be done throughout the course.

D. *Guidelines for Student Support and Facilitation*

Student support and facilitation of implementation be provided throughout the course.

Syllabus:**Modules:**

- i. Module 1: General Microbiology
- ii. Module 2: Immunology
- iii. Module 3: Gastrointestinal and Hepatobiliary infections
- iv. Module 4: Respiratory Infections
- v. Module 5: Skin and soft tissue Infections
- vi. Module 6: Central Nervous System Infections
- vii. Module 7: Cardiovascular and Reticuloendothelial Infections
- viii. Module 8: Genitourinary and Sexually transmitted Infections
- ix. Module 9: Infection Prevention and Control, Applied Microbiology and Miscellaneous

Semester wise distribution of modules

Modules	Name of the Modules	Academic Period
Module 1	General Microbiology	Semester III
Module 2	Immunology	
Module 3	Gastrointestinal and Hepatobiliary infections	Semester IV
Module 4	Respiratory Infections	
Module 5	Musculoskeletal, skin and soft tissue infections	
Module 6	Central Nervous System Infections	
Module 7	Cardiovascular and Reticuloendothelial Infections	Semester V
Module 8	Genitourinary and Sexually transmitted Infections	
Module 9	Infection Prevention and Control, Applied Microbiology and Miscellaneous	

III semester:

Module 1 and 2: General Microbiology and Immunology

(Domain: K-Knowledge, S-Skill; Level – K-Knows, KH-Knows How, S-Shows, SH-Shows How, P-Performs; DOAP – Demonstrate, Observe Assist, Perform)

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
Module: 1 General Microbiology (27 hrs)							
Theory							
1.	Introduction of Microbiology - History, Koch's postulates - Classification of microbes - Microscopy	Large group teaching	1	Describe the different causative agents of infectious diseases, and discuss the role of microbes in health and diseases	K	KH	
2.	Introduction to Bacteriology - Bacterial taxonomy - Staining - Morphology(size, shape, cell anatomy) - Physiology of bacteria (Growth curve, Nutrition)	Large group teaching	1				
3.	Sterilization and Disinfection - Physical methods (Heat, Filtration, Radiation etc.), - Sterility check - Chemical agents, Testing of disinfectants - Spaulding's classification - Recent advances	Flipped class	1	Classify and describe the different methods of sterilization and disinfection, and their application in the laboratory, in clinical and surgical practice	K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
4.	Cultivation of bacteria ○ Culture media ○ Common biochemical reactions ○ Anaerobic culture methods ○ Antimicrobial susceptibility testing	Large group teaching	2	Describe the common methods in isolation and identification of bacteria Describe the method of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K K	KH K	Pharmacology
5.	Bacterial genetics ○ DNA and RNA structure ○ Transmission of genetic material ○ Genetic mechanisms of drug resistance ○ Molecular genetics	Flipped class/Video demonstration	1	Describe the genetic basis of development and transfer of drug resistance and virulence	K	KH	
6.	Introduction to parasitology ○ Classification and General characters ○ Protozoa (Amoebae, Flagellates, Sporozoa, Ciliate) ○ Helminths (Cestode, Trematode and Nematode)	Large group teaching	1		K	KH	
7.	Introduction to Virology ○ Classification and morphology of viruses ○ Viral replication and genetics ○ Virus host interaction ○ Laboratory diagnosis of viral infections	Large group teaching	1		K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	○ Treatment						
8.	Introduction to Mycology ○ Classification and morphology of fungi ○ Superficial and subcutaneous mycoses ○ Systemic and opportunistic mycoses ○ Laboratory diagnosis and treatment	Large group teaching	1		K	KH	
Practical							
1.	Orientation to Microbiology Laboratory ○ Standard precautions ○ Microscopy	Demonstration	2		K	KH	
2.	Bacterial Morphology ○ Size, shape and arrangement of bacteria ○ Capsule and spore	Demonstration	2		K	KH	
3.	Special Staining with India Ink ○ <i>Streptococcus pneumoniae</i> ○ <i>Cryptococcus neoformans</i>	DOAP			S	P	
4.	Preparation of Bacterial Smears	Demonstration	2		K	KH	
5.	Simple staining ○ Loeffler's methylene blue ○ Dilute carbol fuchsin	DOAP			S	P	
6.	Hanging drop preparation ○ Motile bacteria	DOAP	2		S	P	
7.	Gram Staining ○ Gram positive cocci	DOAP	2		S	P	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	- Gram negative bacilli - Mixture of Gram-positive cocci and Gram negative bacilli						
8.	Sterilization and Disinfection - Methods of sterilization - Methods of disinfection - Autoclave - Hot air oven	Spotter Demonstration	2	Choose the most appropriate method of sterilization to be used in difference situation in the laboratory and in clinical practice	K	KH	
9.	Sample Collection and Transport	Demonstration	2		S	SH	
10.	Culture Media - Liquid media - Solid media - Biphasic media	Demonstration			K	KH	
11.	Common Biochemical Reactions - Tests for carbohydrate metabolism - Tests for protein metabolism - Tests for ability to utilize specific substrates - Tests for demonstrating specific enzymes - Combined tests	Demonstration	2		K	KH	
12.	Culture methods Inoculation method on solid media	Demonstration	2		K	KH	
13.	Anaerobic culture methods Robertson Cooked Meat medium	Demonstration			K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	- McIntosh-Field's Jar - The Gaspak System						
14.	Antimicrobial susceptibility testing - Kirby-Bauer method - Stokes Method - Broth Dilution Method	Demonstration			K	KH	
Module: 2 Immunology (21 hrs)							
Theory							
1.	Infection - Classification of infections - Source, transmission and pathogenesis of infection	Large group teaching	1		K	KH	
2.	Immunity Innate and acquired immunity	Large group teaching	1	Describe the immunological mechanisms in health	K	KH	Pathology
3.	Antigens Types and biological classes of antigen	Large group teaching	1		K	KH	
4.	Antibodies and Immunoglobulins Structure of antibody and immunoglobulin classes	Large group teaching	1		K	KH	
5.	Antigen antibody reaction - General properties and types of reaction - Precipitation reaction - Agglutination reaction - Complement fixation test - Neutralization test	Large group teaching	2		K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	- Immunofluorescence assay - Immuno-histochemistry - Immuno-chromatographic test - Western blot - Immuno-electron microscopic tests						
6.	Complement system - Pathways and regulation of complement activation - Effects of complement - Complement deficiencies	Large group teaching	1		K	KH	
7.	Structure and function of Immune system - Lymphoid organs - central and peripheral - Lymphoid cells - T cells, B cells and NK cells - Major histocompatibility complex (MHC)	Large group teaching	1	Describe the mechanism of immune response of host to infections	K	KH	Pathology
8.	Immune response - Cell mediated immune response - Antibody mediated immune response - Immunological tolerance	Large group teaching	1		K	KH	
9.	Hypersensitivity reactions - Definition and classification - Type - I hypersensitivity reaction - Type - II hypersensitivity	Large group teaching	1	Describe the immunological mechanisms in immunological disorders (viz. hypersensitivity,	K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	reaction ○ Type - III hypersensitivity reaction ○ Type - IV hypersensitivity reaction			autoimmune disorders and immunodeficiency disorders			
10.	Immunodeficiency diseases ○ Definition and classification ○ Primary Immunodeficiency diseases ○ Secondary Immunodeficiency diseases	Large group teaching	1				
11.	Autoimmunity ○ Mechanisms of autoimmunity ○ Classification of autoimmune diseases ○ Pathogenesis	Large group teaching	1				
12.	Immunology of transplantation and malignancy ○ Classification of transplants ○ Histocompatibility antigens ○ Graft-versus-host reaction ○ Tumor antigens ○ Immune surveillance ○ Immunotherapy of Cancer	Large group teaching	1	Describe the immunological mechanisms in transplantation and tumour immunity	K	KH	
Practical							
1.	Antigen - Antibody reactions – I ○ Precipitation and flocculation ○ Immunodiffusion ○ Counter-current immunoelectrophoresis	DOAP & Case scenario discussion	2		S	SH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
2.	Antigen - Antibody reactions – II ○ Agglutination Reaction	DOAP & Case scenario discussion	2		S	SH	
3.	Antigen - Antibody reactions – III ○ Complement Fixation Test ○ Neutralisation test ○ Immunoassay – ELISA ○ Immunofluorescence ○ Flow cytometry	DOAP & Case scenario discussion	2		S	SH	
4.	Immunohematology Blood Bank Blood group systems (ABO, Rh and others) Blood transfusion and reactions Transfusion transmitted infections	Programme based discussion	2		K	KH	

b. IV Semester:

Modules 3 to 6: Gastrointestinal and Hepatobiliary infections, Respiratory Infections, Skin and soft tissue Infections and Central Nervous System Infections

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
Module : 3 Gastrointestinal and Hepatobiliary infections (35 hrs)							
Theory							
1.	Enterobacterales ○ Introduction ○ Classification of microbes ○ Infections caused except diarrheagenic <i>E. coli</i>	Large group teaching	1	Enumerate the microbial agents causing diarrhoea, dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents.	K	KH	Community & Family Medicine
2.	Bacterial diarrhea and dysentery ○ Diarrheagenic <i>E. coli</i> ○ Shigella ○ Non typhoidal Salmonella	Problem based learning	1				
3.	Cholera ○ <i>Vibrio cholerae</i> ○ <i>Vibrio mimicus</i> ○ Halophilic Vibrios ○ <i>Aeromonas</i> and <i>Plesiomonas</i>	Flipped class	1				
4.	Bacterial food poisoning ○ <i>Bacillus</i> sp. ○ <i>Clostridium botulinum</i> ○ <i>Staphylococcus</i> sp., etc.	Case based learning	1	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
5.	○ <i>Helicobacter sp.</i> ○ <i>Campylobacter sp.</i> ○ <i>Yersinia enterocolitica</i>	Large group teaching	1	Describe the etiopathogenesis of acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	
6.	Antibiotic associated diarrhea ○ Clostridioides (Clostridium) difficile	Case based learning	1	Enumerate the microbial agents causing diarrhoea, dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents.	K	KH	Pharmacology
7.	Viral gastroenteritis ○ Rotavirus ○ Norwalk virus ○ Adenovirus ○ Astro Virus host interaction	Large group teaching	1				
8.	Amoebiasis ○ Intestinal amoebiasis ○ Extra-intestinal amoebiasis ○ Non-pathogenic intestinal amoeba	Student Seminar	1				
9.	Other intestinal protozoal infections ○ Giardiasis ○ Balantidiasis	Large group teaching	1				
10.	○ Intestinal coccidian parasites	Large group teaching	1				

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	○ Microsporidia						
11.	Intestinal cestodes ○ <i>Diphyllobothrium latum</i> ○ <i>Taenia sp.</i> ○ <i>Hymenolepis nana</i>	Large group teaching	1				
12.	Intestinal nematodes ○ Ascaris ○ Hookworm ○ Trichinella	Case based learning	1				
13.	Intestinal nematodes ○ Trichuris ○ Enterobius ○ Strongyloidiasis Intestinal fluke	Case based learning	1				
14.	Hepatitis viruses – I ○ Hepatitis A & Hepatitis E viruses	Student Seminar	1	Describe the epidemiology, pathogenesis, and discuss the viral markers in evolution of viral hepatitis. Discuss the modalities in the prevention, and management of viral hepatitis	K	KH	Pathology& General Medicine Pathology
15.	Hepatitis viruses II ○ Hepatitis B, Hepatitis C, Hepatitis D & G viruses	Student Seminar	1				
16.	Echinococcosis	Large group teaching	1		K	KH	
17.	Liver flukes	Large group teaching	1		K	KH	
Practical							
1.	<i>Escherichia coli</i> , <i>Klebsiella</i> , <i>Proteus sp.</i>	Demonstration	2		S	SH	
2.	<i>Shigella sp.</i>	Demonstration	2		K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
3.	<i>Vibrio</i>	Demonstration	2		K	KH	
4.	Stool examination Normal constituents, saline and iodine mount	Spotter Demonstration	2	Identify common etiologic agents of diarrhoea and dysentery	S	SH	
5.	Stool examination - Protozoa and Helminth	Spotter Demonstration	2				
6.	Stool examination - Protozoa	DOAP	2				
7.	Stool examination - Helminth	DOAP	2				
8.	Intestinal coccidian parasites, Echinococcus	Spotter Demonstration	2				
9.	Hepatitis viruses	Spotter Demonstration	2	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	S	SH	Pathology
Module: 4 Respiratory Infections (28 hrs)							
Theory							
1.	Streptococcal infections - Streptococci - Group A, B and other groups - Enterococci	Student Seminar	1	Describe the etiopathogenesis, laboratory diagnosis and prevention of infections of upper and lower respiratory tract	K	KH	
2.	Diphtheria	Case based learning	1				
3.	- Haemophilus - Bordetella	Large group teaching	1				
4.	Sinusitis and otitis including Zygomycosis	Large group teaching	1				
5.	Viral upper respiratory infections Rhinovirus	Case based learning	1				

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	- Adenovirus - Infectious mononucleosis						
6.	Pneumococcal pneumonia including <i>Streptococcus viridans</i>	Problem based learning	1				
7.	Atypical pneumonia - Mycoplasma - Chlamydia - Legionella	Large group teaching	1				
8.	Tuberculosis	Integrated teaching	1				Pathology, Pharmacology & CFM
9.	- Non- tubercular Mycobacteria - Mycobacterium leprae	Large group teaching	1				
10.	Orthomyxovirus	Large group teaching	1				
11.	- Paramyxovirus - Corona virus	Large group teaching	1				
12.	Paragonimiasis	Large group teaching	1				
13.	Fungal pneumonia Aspergillosis Pneumocystis jirovecii and others	Large group teaching	1				
14.	Ventilator Associated Pneumonia	Seminar	1	Define HAI, enumerate types. Discuss the contributing factors and mode of prevention.	K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
Practical							
1.	Streptococcal infections - Streptococci - Group A, B and other groups - Enterococci	Demonstration	2	Identify common etiologic agents of upper respiratory tract infections	S	SH	
2.	C. diphtheriae Demonstration of Albert staining	Demonstration	2				
3.	Albert staining	DOAP	2				
4.	Haemophilus	Demonstration	2		K	KH	
5.	Tuberculosis and NTM - Demonstration of Acid fast staining - Tuberculin Skin Test (Mantoux test)	Demonstration Clinical visit	2	Identify common etiologic agents of lower respiratory tract infections	S	SH	
6.	Acid fast staining	DOAP	2				
7.	LPCB mount - Aspergillus - Zygomycetes	Spotter Demonstration	2				
Module 5: Skin and soft tissue Infections (23 hrs)							
Theory							
1.	Staphylococcal infections	Large group teaching	1	Describe the etiopathogenesis of infections of skin, soft tissues, and discuss the clinical course and the laboratory diagnosis.	K	KH	
2.	Anaerobic infections – I (Clostridium)	Flipped Class	1				
3.	Anaerobic infections – I (Gram negative anaerobes)	Flipped Class	1				
4.	Anthrax	Large group teaching	1				
5.	Leprosy	Case based learning	1				
6.	Surgical site infections (Pseudomonas)	Seminar	1				

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
7.	Pox viruses	Case based learning	1	Describe the etiopathogenesis, clinical course and the laboratory diagnosis of bone and joint infections.			
8.	Varicella zoster, HHV-8, Papova viruses	Large group teaching	1				
9.	Tissue nematodes- Onchocerca, Loa loa and Dracunculus	Large group teaching	1				
10.	Superficial fungal infections	Large group teaching	1				Dermatology
11.	Subcutaneous fungal infections	Large group teaching	1	*Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course, laboratory diagnosis of anaerobic infections. Define HAI, enumerate types. Discuss the contributing factors and mode of prevention.			
Practical							
1.	Staphylococcus	Demonstration	2	Identify common etiologic agents of skin and soft tissue infections	S	SH	
2.	Clostridium	Demonstration	2				
3.	Bacillus	Demonstration	2				
4.	Pseudomonas	Demonstration	2				
5.	Superficial fungal infections –	Spotter	2	Identify common	S	SH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
	LPCB mount	Demonstration		fungal agents of superficial and subcutaneous fungal infections			
6.	Subcutaneous fungal infections – LPCB mount	Spotter Demonstration	2				
Module 6: Central Nervous System Infections (20 hrs)							
Theory							
1.	Acute pyogenic Meningitis – Meningococcal and other bacterial agents, brain abscess	Flipped class	1	Describe the etiopathogenesis, clinical course and the laboratory diagnosis of meningitis, and encephalitis.	K	KH	Pathology& Pharmacology
2.	Aseptic meningitis- viral and spirochete	Large group teaching	1				
3.	Tetanus	Integrated teaching	1				
4.	Free living amoebae, Neurocysticercosis	Large group teaching	1				
5.	Toxoplasmosis	Large group teaching	1				
6.	Poliomyelitis	Large group teaching	1				Pathology
7.	Rabies	Case based learning	1				
8.	Arboviral encephalitis	Large group teaching	1				
9.	Slow viral infections and Prions	Large group teaching	1				
10.	Cryptococcal meningitis and other fungi affecting CNS	Case based learning	1				
Practical							
1.	Meningitis	Demonstration	2		S	SH	
2.	Clostridium tetani	Demonstration	2		S	SH	
3.	Rabies	Demonstration	2		S	SH	
4.	Cryptococcus	Demonstration	2		S	SH	
5.	Entomology	Spotter/Demonstration	2		S	SH	

c. V Semester:
Modules 7 to 9: Cardiovascular and Reticuloendothelial Infections, Genitourinary and Sexually transmitted Infections and Applied Microbiology

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
Module 7: Cardiovascular and Reticuloendothelial Infections (32 hrs)							
Theory							
1.	Infective endocarditis and Rheumatic heart disease	Flipped Class	1	Describe the etiopathogenesis, clinical features, and laboratory diagnosis of infective endocarditis Describe the etiologic agent in rheumatic fever, and laboratory diagnosis	K	KH	
2.	Sepsis and CRBSI	Case based learning	1		K	KH	
3.	Enteric fever	Seminar	1	Describe the enteric fever pathogens, and discuss the clinical course, and the laboratory diagnosis	K	KH	General Medicine
4.	Brucellosis	Large group teaching	1		K	KH	
5.	Leptospirosis, Borreliosis and Listeriosis	Large group teaching	1		K	KH	
6.	Rickettsial infections	Problem based learning	1		K	KH	
7.	Trypanosomiasis	Large group teaching	1		K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
8.	Leishmaniasis	Large group teaching	1	Describe the etiopathogenesis, clinical evolution, and the laboratory diagnosis of kala azar, malaria, filariasis, and other common parasites prevalent in India	K	KH	
9.	Malaria - I	Integrated teaching	1				
10.	Malaria - II	Integrated teaching	1				
11.	Schistosomiasis	Large group teaching	1				
12.	Lymphatic filariasis	Seminar	1				
13.	Dengue and chikungunya	Integrated teaching	1	Describe the etiopathogenesis, clinical course and the laboratory diagnosis of viral haemorrhagic fever	K	KH	
14.	Viral hemorrhagic fever	Large group teaching	1		K	KH	
15.	Systemic mycosis	Large group teaching	1		K	KH	
16.	Candidiasis	Large group teaching	1		K	KH	
Practical							
1.	Salmonella	Demonstration	2	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate tests related to duration of illness.	K	KH	
2.	Brucella	Demonstration	2		K	KH	
3.	Leptospira	Demonstration	2		K	KH	
4.	Leishmania	Demonstration	2	Identify the causative	K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
5.	Malaria – Thick and thin smear	Demonstration	2	agents of malaria and kala azar			
6.	Filaria	Demonstration	2		K	KH	
7.	Dengue	Demonstration	2		K	KH	
8.	Candida	Demonstration	2		K	KH	
Module 8: Genitourinary and Sexually transmitted Infections (15 hrs)							
Theory							
1.	Urinary tract infections and CAUTI	Flipped Class	1	Describe the etiopathogenesis and discuss the laboratory diagnosis of urinary tract infections	K	KH	
2.	Gonorrhoea and non-gonococcal urethritis	Case based learning	1	Describe the etiopathogenesis and discuss the laboratory diagnosis of sexually transmitted infections, recommended preventive measures	K	KH	Dermatology & STD
3.	Syphilis	Seminar	1				Dermatology & STD
4.	Lymphogranuloma venereum, Granuloma inguinale, soft chancre, Bacterial vaginosis and Trichomonas vaginalis	Large group teaching	1				Dermatology & STD
5.	Herpes viruses	Large group teaching	1				
6.	HIV - 1	Integrated teaching	1	Describe the epidemiology, etiopathogenesis, evolution,	K	KH	General Medicine, Pathology
7.	HIV - 2	Integrated teaching	1				

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
				complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV infections			
Practical							
1.	Neisseria gonorrhoea	Demonstration	2	Identify the microbial agents causing infections of genitourinary tract	S	SH	
2.	Syphilis	Demonstration	2				
3.	Herpes	Demonstration	2				
4.	HIV	Demonstration	2	Choose the appropriate laboratory test for diagnosis of HIV infections in different situations	S	SH	
Module 9: Infection Prevention and Control, Applied Microbiology and Miscellaneous Theory (25 hrs)							
Theory							
1.	Congenital infections ○ Cytomegalovirus and rubella	Case based learning	1		K	KH	
2.	Ocular and ear infections	Case based learning	1		K	KH	
3.	Osteomyelitis and septic arthritis	Problem based learning	1		K	KH	
4.	Organisms with Oncogenic potentials	Large group teaching	1	Describe the role of oncogenic viruses in the evolution of virus associated	K	KH	Pathology & Gen Medicine

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
				malignancy			
5.	Viral hemorrhagic fever	Large group teaching	1		K	KH	
6.	Hospital acquired infections	Seminar	1	Define HAI, enumerate types. Discuss the contributing factors and mode of prevention.	K	KH	
7.	Antimicrobial stewardship	Flipped class	1		K	KH	
8.	Biomedical waste management	Seminar	1		K	KH	
9.	Zoonotic infections	Large group teaching	1	Enumerate the microbial agents and their vectors causing zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis, clinical course, laboratory diagnosis and prevention	K	KH	General Medicine, CFM
10.	Emerging and reemerging infections	Large group teaching	1	Describe the etiologic agents of emerging and re-emerging infectious diseases.	K	KH	
11.	Bioterrorism	Seminar	1		K	KH	
12.	Bacteriology of food, milk, water and air	Large group teaching	1		K	KH	

Sl. No	Topic	Teaching method	Hours	Competency	Domain	Level	Integration
13.	Immunoprophylaxis	Large group teaching	1		K	KH	
Practical							
1.	Immunoprophylaxis	Demonstration	2		K	KH	
2.	Role of Molecular diagnostics in infectious diseases	Group discussion	1		K	KH	
3.	Surveillance of hospital acquired infections and calculation of HAI rates	DOAP	1	Describe and demonstrate the basics of infection prevention and control practices	S	SH	
4.	Active surveillance of multi-drug resistant organisms (MDRO)	Group discussion	1		K	KH	
5.	Mode of transmission and transmission-based precautions	Group discussion	1		K	KH	
6.	Environmental decontamination and management of spills	DOAP	1		S	SH	
7.	Needlestick injury prevention and management	Group discussion	1		K	KH	
8.	Donning and doffing of personal protective equipment	DOAP	1		S	SH	
9.	Bio-medical waste disposal	DOAP	1		S	SH	
10.	Detection of microbial contamination of food, water, and air	Group discussion	1	Describe the methods used and significance of assessing microbial contamination of food, water, and air	K	KH	
11.	Biohazard groups and biosafety levels	Group discussion	1		K	KH	

Teaching and Learning Methodology

b. Theory

Teaching microbiology to undergraduate medical student is provided with the help of Didactic Lectures, flipped classes, integrated teaching – vertical and horizontal, Video demonstration, Intradepartmental Seminars (IS), Integrated Seminars and Tutorials that deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections.

c. Practical

Demonstration, Hands on training on microscopy, culture reading and interpretation of biochemical test, Case based exercise, Spotters, Charts, Slideshow, etc.

d. Essential skills list: laboratory procedural skills

Sl No	Practical skill	Timing of Assessment
1.	Performance and interpretation of Gram stain of direct and culture smears	Internal assessment and Summative Assessment
2.	Performance and interpretation of Albert stain for granules of <i>Corynebacterium diphtheria</i>	Internal assessment
3.	Performance and interpretation of Kinyoun's stain of sputum smears for AFB.	Internal assessment and Summative Assessment
4.	Preparation and interpretation of wet mount of stool specimens for ova/cysts of parasites	Internal assessment and Summative Assessment
5.	Preparation of thick and thin smears of peripheral blood for malarial parasites	Formative assessment
6.	Collection, transport and storage of samples for microbiological investigations	Formative assessment
7.	○ Interpretation of culture, biochemical tests and antibiotic susceptibility testing reports. ○ Choice of empirical therapy for different clinical syndromes	Internal assessment and Summative Assessment
8.	○ Interpretation of common serological tests – Widal, VDRL/RPR, Weil-Felix. SAT for brucellosis, ASO, CRP, RA. ○ Virology tests: Dengue ELISA, Hepatitis A, B and C, HIV etc.	Internal assessment and Summative Assessment
9.	Principles of sterilization and biomedical waste management	Formative assessment
10.	Principles of universal / airborne / contact precautions and other measures to control HAI	Internal assessment

e. Project work:

Preparation of models

Preparation of charts

Preparation of poster

Total Teaching Hours and Time Table

Sl. no	Subject Discipline	Theory (Hrs)	Practical (Hrs)	Internal assessment (Hrs)	Total (Hrs)
1.	III, IV and V SEMESTERS	80	140	30	250

Model Time Table

Date	Day	Time	Mode	Topic	Faculty
28-Mar-23	Tue	13:00-14:00 Hr	Lecture (Large Group)	Introduction to Microbiology & Bacteriology	Dr Mangayarkarasi V
29-Mar-23	Wed	14:00-16:00 Hr	Practical	Introduction to Microscopy & Good Lab Practices	Dr Mangayarkarasi V, Dr Elantamilan D & Dr Arghya Das
4-Apr-23	Tue	13:00-14:00 Hr		HOLIDAY (Mahavir Jayanti)	
5-Apr-23	Wed	14:00-16:00 Hr	Practical	Bacterial Morphology	Dr Mangayarkarasi V, Dr Elantamilan D & Dr Arghya Das
11-Apr-23	Tue	13:00-14:00 Hr	Lecture (Large Group)	Sterilization and Disinfection	Dr Elantamilan D
12-Apr-23	Wed	14:00-16:00 Hr	Practical	Preparation of Bacteria Smears, Simple Staining	Dr Mangayarkarasi V, Dr Elantamilan D & Dr Arghya Das
14-Apr-23	Fri	08:00-09:00	Flipped Class	Cultivation of bacteria - I Culture Media (ii) Biochemicals	Dr Arghya Das

Date	Day	Time	Mode	Topic	Faculty
		Hr			
18-Apr-23	Tue	13:00-14:00 Hr	Lecture (Large Group)	Cultivation of bacteria - II (i) Anaerobic culture methods Antimicrobial Susceptibility Testing	Dr Elantamilan D
19-Apr-23	Wed	14:00-16:00 Hr	Practical (Demonstration)	Spotters of disinfection and sterilization	Dr Mangayarkarasi V, Dr Elantamilan D & Dr Arghya Das
25-Apr-23	Tue	13:00-14:00 Hr	Lecture (Large Group)	Bacterial genetics	Dr Mangayarkarasi V
26-Apr-23	Wed	14:00-16:00 Hr	Practical	Hanging Drop Preparation	Dr Mangayarkarasi V, Dr Elantamilan D & Dr Arghya Das
28-Apr-23	Fri	08:00-09:00 Hr	Flipped class	Introduction to Parasitology	Dr Elantamilan D

A. Marks distribution for theory papers I and II (Pre-professional and professional examination)

Paper I – Modules 1- 5

Paper II – Modules 6-9

THEORY EXAMINATION: PAPER PATTERN & MARKS DISTRIBUTION

Question paper pattern: Each theory paper of 100 marks consists of the following pattern (Total duration: 3 hrs ; Section A – 20 mins; Section B and C : 2 hrs 40 mins)

Theory	Pattern	Marks	Total marks = (100+100 = 200)
Paper I 100 marks	Section A (Multiple Choice Questions) comprising of Reasoning and assertion type, True/False type, Matching type image based and Direct type	20 x 1 mark	20 marks
	Section B (Subjective Question) • One (1) Long Question (Structured) • Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
	Section C (Subjective Question) • One (1) Long Question (Structured) • Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
Paper II 100 marks	Section A (Multiple Choice Questions) comprising of Reasoning and assertion type, True/False type, Matching type and Direct type	20 x 1 mark	20 marks
	Section B (Subjective Question) • One (1) Long Question (Structured) • Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
	Section C (Subjective Question) • One (1) Long Question (Structured) • Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks

Marks distribution for Practical Examination (Pre-professional and professional examination)

Exercises	Heads of Examination	Marks
Practical	Spotters (10 x 2 marks)	20
	Gram Staining	10
	Acid Fast Staining	10
	Stool Examination	10
	OSPE (Manned station = 10marks + Unmanned station =10 marks)	20
	Practical Record	10
	Total	80
Viva – voce	General bacteriology & Immunology	05
	Systemic Bacteriology	05
	Virology & Mycology	05
	Parasitology, Infection prevention control and Applied Microbiology	05
	Total	20
GRAND TOTAL		100

2nd PROFESSIONAL MBBS BATCH
PRACTICAL EXAMINATION MARK CHART

S.no	Roll No.	Spotters (10 x 2 marks = 20M)	Exercise-I Gram Staining (10 M)	Exercise-II AFB Staining (10M)	Exercise-III Stool Examination (10 M)	Exercise-IV OSPE (20 M)		Practical Record (10 M)	Grand Viva-20				Total
						Manned stations (10)	Unmanned stations (10)		General bacteriology& Immunology- (5 M)	Systemic Bacteriology- (5 M)	Virology & Mycology (5 M)	Parasitology, IPC &Applied Microbiology (5 M)	

TOTAL MARKS-100

Model Question Paper
All India Institute of Medical Sciences (AIIMS), Madurai, Tamil Nadu
MICROBIOLOGY - PAPER I

Date: _____

Timing: 03 hours

Max Marks – 100

Section A

(Timing: 20 mins)

Multiple Choice Questions (MCQs)

20x01 marks = 20

Section B & C

(Timing: 2 hrs. 40 mins)

Section B

Long Answer Question

01x10marks= 10
(1+4+5)

1. A 10- y e a r - o l d boy developed difficulty in breathing and collapsed immediately following IV penicillin injection.
 - a) Name the type of Hypersensitivity reaction in the above case.
 - b) Describe the immunological mechanism of this condition.
 - c) Classify hypersensitivity reactions and describe them briefly along with examples.

Short Answer Questions

06 x 05 Marks = 30

2. Bacterial Growth curve
 3. Immuno prophylaxis
 4. Fluorescent Microscopy
 5. Antimicrobial resistance
 6. Class switching of antibodies
 7. Graft rejection
-

Section C

Long Answer Question

01x10 marks= 10
(1+1+3+2+3)

8. A 30year old woman was brought to the emergency department with difficulty in breathing and fever for 2 days. There is history of visiting her relative in the hospital, who is admitted with similar presentation since last 10 days. Her Oxygen saturation was 75%.
 - a) What is the most probable clinical diagnosis?
 - b) Mention the appropriate samples for testing in this patient and how will you transport the sample.
 - c) Enumerate the various modalities of testing.
 - d) Briefly discuss the pathogenesis of this disease.
 - e) Name the two types of vaccines available in our country for the prevention of the above disease. Briefly describe them.

Short Answer Questions**06 x 05 Marks = 30**

9. Complications of amoebiasis
10. Lab diagnosis of Hepatitis B infection
11. Multidrug resistant Tuberculosis
12. Antigenic structure of Group A Streptococcus
13. Dermatophytes
14. A child presents with rashes, starts behind the ears and then spread over body. On examination, bluishwhite spots were seen in buccal mucosa. What is the clinical diagnosis. Discuss about the prevention of this disease.

Recommended Textbooks:

1. Ananthanarayan and Paniker's Textbook of Microbiology, R. Ananthanarayan and C.K Jayaram Paniker, Editor: Reba Kanungo, 12th Edition.
2. Medical Microbiology, David Greenwood, Richard Slack, Michael Barer, Will Irving 19th Edition.
3. Jawetz, Melnick & Adelberg's Medical Microbiology, 28th Edition.
4. A Textbook of Microbiology, P.Chakraborty, 3rd Revised Edition.
5. Essential of Medical Microbiology, Rajesh Bhatia & R.L. Ichhpujani, 4th Edition
6. Essentials of Medical Microbiology, Apurba S Sastry, Sandhya Bhat, 3rd Edition.
7. Essentials in Clinical Practice, D.C. Shanson, 2nd Edition.
8. Textbook of Medical Microbiology, Arora and Arora, 5th Edition
9. Parasitology (Protozoology & Helminthology), K.D. Chatterjee, 13th Edition
10. Paniker's Textbook of Medical Parasitology, C.K. Jayaram Paniker, Sougata Ghosh, 8th Edition
11. Textbook of Medical Parasitology, Arora and Arora, 5th Edition
12. Textbook of Medical Parasitology, S.C. Parija, 4th Edition
13. Textbook of Medical Mycology, Jagdish Chandra, 4th Edition

Reference Textbooks:

1. Mackie McCartney Practical Medical Microbiology, Colle JG, Fraser AG. 14th Edition
2. Topley & Wilson's Microbiology and Microbial Infections (Vol 1 – 8), W.W.C. Topley and Graham S. Wilson, 10th Edition
3. Medical Mycology, Emmons CW, Kwon Chung KJ.
4. Immunology, Stewart J & Weir DM
5. Notes on Medical Virology, Timbury MC

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DEPARTMENT OF PATHOLOGY

“The Art of Pathology is elusive, evasive and esoteric”

Introduction

Pathology is a branch of medicine which deals with the understanding of disease processes at a cellular and molecular level. As the famous quote by Sir William Osler goes “As is our Pathology, so is our Medicine”, Pathology can be considered as the core of clinical medicine where one will be able to understand the etiology, the basic patho-biology, the macroscopic and microscopic findings, and the clinical manifestations associated with the disease process.

With the advent of molecular techniques and precision medicine on the rise, there is a dire need for the Pathologist to give a precise diagnosis at a subcellular level as it will be decisive in giving targeted therapy for the patient. Hence, by undergoing a thorough training in pathology, the MBBS graduate will be able to get a comprehensive idea of the Pathological basis of disease which will help in improving his clinical acumen.

Vision

Our vision is to impart the highest standard of medical education, inculcate tools for practical understanding of the subject, encourage students in research and enlighten them on the recent advances in the field so as to make them better medical graduates of the future with adept diagnostic and clinical skills.

Mission

- To foster an intellectually stimulating environment and help students understand the basics of pathology with the help of a multitude of teaching methods including interactive large group teaching, small group discussions, DOAP, case studies etc.
- To teach the relevance of various pathological investigations in diverse disease conditions thereby enabling them to become a better clinician.
- To ignite in students a scientific quest for learning pathology and encouraging research.

Goal

By the end of the academic year, the MBBS graduate is expected to understand the pathological basis of diseases and must be able to apply it on a practical standpoint in their clinical postings to further improvise on the same as they proceed in their medical career which may also include taking up Pathology as their speciality.

Objectives

Theory

A MBBS student at the end of training in Pathology should be able to:

1. Conceptualize the mechanism governing cell injury at an ultrastructural level, know the various pathological changes produced by it in various tissues & organs and the body's adaptive response of healing.
2. Describe and analyze the normal homeostatic mechanisms, the disorders associated with the mechanism and the pathological effects on human systems.
3. Conceptualize the etiopathogenesis, the mechanisms, the adaptive responses governing neoplasia in correlation with the morphological features, the diagnostic and prognostic features in various tissues and organs of the body.
4. Describe the pathological aspects of the common immunopathological disorders and their resultant clinicopathological effects on the human body.
5. Discuss etiopathogenesis, morphological changes and clinico-pathological responses associated with the common infectious and non-infectious diseases.
6. Outline the basics of common haematological disorders and the investigations necessary for the diagnosis & prognosis of the diseases.
7. Explain the normal and altered morphology (gross and microscopy) of different organ systems in different systemic diseases with a thorough understanding of the disease processes and their clinical significance.
8. Perform and interpret in a proper manner the basic clinico-pathological procedures.
9. Know the principles of collection, handling and dispatch of clinical samples from patients in a proper manner.

Practical

1. Identification & Interpretation of the gross and/or microscopic features of common specimens with defined pathology.
2. Discuss the basic haematological procedures such as haemoglobin estimation, RBC indices, total and differential WBC count, and interpret the result.
3. Observe relevant hematology tests like ESR, PCV, bone marrow examination & interpret the abnormal findings.
4. Perform a peripheral smear stain, examine and interpret the results (includes „Malarial parasite examination“).
5. Perform a complete examination of the urine (via dipstick) and detect any abnormalities.
6. Perform ABO blood grouping and Rh typing independently with interpretation.
7. Collect and dispatch clinical samples pertaining to hematopathology, cytopathology, histopathology & blood bank along with appropriate request form.
8. Analyse & interpret abnormal biochemical and hematological laboratory values of common diseases (via OSPE charts).
9. Identification & knowledge pertaining to the utility of instruments of relevance in pathology such as vacutainers, bone marrow needles, liver biopsy needles, Westergren’s tube etc.
10. Able to write an appropriate request form for common tests performed in pathology laboratory.

General Instructions to Students

Theory Class

1. Attendance for theory class is mandatory.
2. Minimum of 75% theory attendance is compulsory.
3. Absence from classes without prior intimation will be dealt with prompt action.
4. Attire decently, befitting the decorum of a medical graduate.
5. Keep your mobile phones in switched off or silent mode during classes.
6. Avoid photography of any kind in the Interactive large group teaching (ILGT) hall during classes.
7. Wear formal shoes; girl students should keep their hair tied.
8. No student must be absent for any internal assessment examinations.

Practical Class

1. Attendance for practical is mandatory.
2. A minimum of 80% practical attendance is compulsory.
3. Wear a neat white coat for all practical classes.
4. Slides / Microscopes/ Charts/ Instruments are for students. It should be handled with care and returned as it is to lab attendants after use.
5. No eatables are allowed inside the lab premises.
6. Maintain universal precaution and report all accidents or incidents immediately to the faculty for assessment.
7. Avoid photography of any kind in demonstration rooms, museums and practical laboratories.
8. Maintain cleanliness in the Laboratory premises.
9. Dispose gloves in colour coded bio waste containers.
10. Each student will be allotted a place in the working area of the laboratory.
11. Loss or breakage of any items during practicals should be reported to the faculty immediately and might be liable for charges.
12. Students should pay attention to instructions in demonstration class before starting practicals.
13. Students should carry a practical record, keep it updated after every practical class and get it duly signed.
14. Students should bring Haematoxylin and Eosin colour pencils along with HB lead pencils for every practical class.
15. Students should have a piece of cotton cloth for cleaning of microscopes, after use.
16. Wash your hands and remove your laboratory coat when you leave the practical hall.

Course Contents

S.No	Topic	Competency	Domain (K/S/A/C)	Competency Level (K/KH/S/SH/P)	Teaching Methods	Assessment Methods
1	Introduction	Describe the history and evolution of Pathology	K	K	Departmental orientation	Written / Viva voce
		Describe the role of a pathologist in diagnosis and management of disease	K	K	Departmental orientation	Written / Viva voce
		Enumerate common definitions and terms used in Pathology	K	K	ILGT / SGD	Written / Viva voce
		Identify and describe the parts of compound microscope and discuss its uses	S	SH	SGD	Skill Assessment
2	Cell Injury	Demonstrate the knowledge of causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	ILGT / SGD	Written / Viva voce

		Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, Metaplasia, dysplasia	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe various forms of cellular adaptation in gross and microscopic specimens	S	SH	SGD	Skill Assessment
		Describe and discuss Cell death-types, mechanisms; necrosis, apoptosis, autolysis, autophagy	K	KH	ILGT / SGD	Written / Viva voce
		Describe and discuss pathologic calcifications & gangrene	K	KH	ILGT / SGD	Written / Viva voce
		Describe intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	ILGT / SGD	Written / Viva voce
		Describe and discuss the mechanisms of cellular aging	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe various forms of cell death, calcification and intracellular accumulation in gross and microscopic specimens	S	SH	SGD	Skill Assessment
3	Amyloidosis	Describe the pathogenesis and pathology of amyloidosis	K	KH	ILGT / SGD	Written / Viva voce

		Identify and describe amyloidosis in a pathology specimen	S	SH	SGD	Skill Assessment
4	Inflammation & Repair	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and describe the mediators of acute inflammation	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe acute inflammation in gross and microscopic specimens	S	SH	SGD	Skill Assessment
		Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of each	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the features of chronic and granulomatous inflammation in a gross and microscopic specimen	S	SH	SGD	Skill assessment

		Define and describe the process of repair and regeneration including wound healing and its types	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe granulation tissue in microscopic specimen	S	SH	SGD	Skill Assessment
5	Hemodynamic disorders	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe hyperemia, congestion, hemorrhage	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe shock, its pathogenesis and its stages	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe embolism and its causes and common types	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects	K	KH	ILGT / SGD	Written / Viva voce

		Identify and describe the gross and microscopic features of congestion, infarction and thrombus in a pathologic specimen	S	SH	SGD	Skill Assessment
6	Growth disturbance and Neoplasia	Describe the risk factors, pathogenesis and morphology of growth disturbances - malformation, agenesis and dysplasia.	K	KH	ILGT / SGD	Written / Viva voce
		Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and spread. Differentiate between benign from malignant neoplasms	K	KH	ILGT / SGD	Written / Viva voce
		Identify, distinguish and describe the features of benign and malignant tumors in gross and microscopic specimens	S	SH	SGD	Skill Assessment
		Describe the molecular basis of cancer	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate carcinogens and describe the process of carcinogenesis	K	KH	ILGT / SGD	Written / Viva voce

		Describe the effects of tumor on the host including paraneoplastic syndrome	K	KH	ILGT / SGD	Written / Viva voce
		Describe immunology and the immune response to cancer	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and discuss various pathology tests used in the diagnosis of cancer, it's principle and clinical application	K	KH	ILGT / SGD	Written / Viva voce
		Observe fine needle aspiration cytology and PAP smear - procedure, staining and interpretation	S	KH	DOAP Session	Skill Assessment
7	Immuno pathology	Describe the principles and mechanisms involved in immunity	K	KH	ILGT / SGD	Written / Viva voce
		Describe the mechanism of hypersensitivity reactions	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the morphologic features of hypersensitivity reaction	S	KH	SGD	Skill Assessment
		Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	ILGT / SGD	Written / Viva voce

		Define autoimmunity. Enumerate autoimmune disorders	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis of other common autoimmune diseases	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	ILGT / SGD	Written / Viva voce
8	Genetic & Pediatric Disorders	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	K	KH	ILGT / SGD	Written / Viva voce
		Interpret karyotyping of common chromosomal disorders	S	KH	SGD	Skill Assessment
		Describe the pathogenesis of common storage disorders in infancy and childhood	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis and pathology of tumor and tumor like conditions in infancy and childhood	K	KH	ILGT / SGD	Written / Viva voce

		Identify and describe the gross and microscopic features of Wilms tumor	S	KH	SGD	Skill Assessment
9	Infectious Disorders	Define and describe the pathogenesis and pathology of malaria	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis and pathology of cysticercosis	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis and pathology of leprosy	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the pathogenesis and pathology of other common bacterial, viral, protozoal and helminthic diseases - syphilis, herpes, CMV, filariasis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the pathologic features of malaria, filaria, amoebiasis and typhoid intestine.	S	KH	SGD	Skill Assessment
10	Environmental and Nutritional Disorders	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	ILGT / SGD	Written / Viva voce

		Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis of obesity and its consequences	K	KH	ILGT / SGD	Written / Viva voce
11	Hematopathology & Transfusion Pathology	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the role of anticoagulants in hematology	K	KH	ILGT / SGD	Written / Viva voce
		Identify various blood collection tubes and describe its uses	S	KH	SGD	Skill Assessment
		Define and classify anemia	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and describe the investigation of anemia	K	KH	ILGT / SGD	Written / Viva voce
		Perform, identify and describe the peripheral blood picture in anemia	S	P	DOAP session / SGD	Skill assessment
		Describe iron metabolism	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	ILGT / SGD	Written / Viva voce

	Identify and describe the peripheral smear in microcytic anemia	S	SH	SGD	Skill assessment
	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	ILGT / SGD	Written / Viva voce
	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	ILGT / SGD	Written / Viva voce
	Identify and describe the peripheral blood picture of macrocytic Anemia	S	SH	SGD	Skill assessment
	Define and classify hemolytic anemia	K	KH	ILGT / SGD	Written / Viva voce
	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	ILGT / SGD	Written / Viva voce

		Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia, thalassemia, Hereditary spherocytosis and G6PD deficiency	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	ILGT / SGD	Written / Viva voce
		Describe the peripheral blood picture in different hemolytic anaemias	K	KH	ILGT / SGD	Written / Viva voce
		Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	SH	DOAP session / SGD	Skill assessment
		Enumerate the etiology, pathogenesis, peripheral smear and bone marrow findings in aplastic anemia	K	K	ILGT / SGD	Written / Viva voce
		Observe bone marrow aspiration and biopsy and enumerate the indications, contra-indications and complications	S	KH	ILGT / SGD	Written / Viva voce

		Enumerate and describe the causes of leukocytosis, leucopenia, lymphocytosis and leukemoid reactions	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, genetics, pathogenesis, classification, clinical features, hematologic features of acute and chronic leukemia	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, classification, clinical features, hematologic and urinary findings of Plasma cell neoplasm	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the morphological features of plasma cell myeloma in bone marrow smear	S	SH	SGD	Skill assessment
		Describe normal hemostasis	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP, HUS and haemophilia	K	KH	ILGT / SGD	Written / Viva voce

	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	ILGT SGD	Written / Viva voce
	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	ILGT / SGD	Written / Viva voce
	Define and describe Vitamin K deficiency, its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	ILGT / SGD	Written / Viva voce
	Classify and describe blood group systems (ABO and RH)	K	KH	ILGT / SGD	Written / Viva voce
	Perform and interpret ABO blood grouping and Rh typing	S	P	DOAP session	Skill assessment
	Enumerate blood components and describe their clinical uses	K	KH	ILGT / SGD	Written / Viva voce
	Enumerate and describe infections transmitted by blood transfusion	K	KH	ILGT / SGD	Written / Viva voce
	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	ILGT / SGD	Written / Viva voce

		Enumerate the indications and describe the principles and procedure of autologous transfusion	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate the indications; describe the principles; enumerate and demonstrate the steps of compatibility testing	K	KH	ILGT / SGD	Written / Viva voce
		Identify various types of blood bag and discuss its uses, anticoagulants, shelf life and storage condition	S	SH	SGD	Skill assessment
12	Pathology of Lymphoretic ular system	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	ILGT / SGD	Written / Viva voce
		Describe and discuss the pathogenesis and morphological features of Hodgkin lymphoma	K	KH	ILGT / SGD	Written / Viva voce
		Describe and discuss the pathogenesis and morphological features of non-Hodgkin lymphoma	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the features of Hodgkin lymphoma in a gross and microscopic specimen	S	SH	SGD	Skill assessment

		Describe the etiopathogenesis and morphology of thymic dysgenesis, atrophy, hyperplasia and neoplasia	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and differentiate the causes of splenomegaly	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the morphologic features of enlarged spleen	S	SH	SGD	Skill assessment
13	Cardiovascular pathology	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of atherosclerosis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the types, etiology, pathogenesis and morphology of vasculitis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of atherosclerosis, aneurysm and hemangioma	S	SH	SGD	Skill assessment

		Describe the etiology, types, stages, pathophysiology, pathology and complications of heart failure	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	ILGT / SGD	Written / Viva voce
		Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of RHD, myocardial infarction and infective endocarditis	S	SH	SGD	Skill assessment

		Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	ILGT / SGD	Written / Viva voce
14	Respiratory pathology	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of pneumonia and lung abscess	S	SH	SGD	Skill assessment

		Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of chronic obstructive airway diseases	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of pulmonary tuberculosis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of bronchiectasis and lung tuberculosis	S	SH	SGD	Skill assessment
		Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung diseases	K	KH	ILGT / SGD	Written / Viva voce

		Define and describe the etiology, types, exposure, genetics, environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the etiology, types, exposure, genetics, environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of lung carcinoma and lung secondaries	S	SH	SGD	Skill assessment
15	Gastro-intestinal tract pathology	Describe the etiology, pathogenesis, pathology and clinical features of oral cancer	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, pathology and clinical features of Barrett esophagus	K	KH	ILGT / SGD	Written / Viva voce

		Describe the etiology, pathogenesis, pathology and clinical features of esophageal cancer	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of pleomorphic adenoma, Carcinoma oral cavity and esophagus	S	SH	SGD	Skill assessment
		Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	ILGT / SGD	Written / Viva voce
		Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	ILGT / SGD	Written / Viva voce
		Describe and identify the morphologic features of peptic ulcer and carcinoma stomach	S	SH	SGD	Skill assessment
		Describe the etiology, pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	ILGT / SGD	Written / Viva voce

		Enumerate and discuss the pathogenesis, morphology and lab diagnosis of malabsorption syndrome	K	KH	ILGT / SGD	Written / Viva voce
		Describe etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	ILGT / SGD	Written / Viva voce
		Classify polyps and describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	ILGT / SGD	Written / Viva voce
		Describe and identify the morphologic features of TB intestine, acute appendicitis, intestinal polyposis and carcinoma colon	S	SH	SGD	Skill assessment
16	Liver, biliary tract and pancreatic pathology	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	ILGT / SGD	Written / Viva voce

		Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	ILGT / SGD	Written / Viva voce
		Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features & liver function tests	S	P	SGD	Skill assessment
		Describe the pathophysiology pathology and progression of alcoholic liver disease including cirrhosis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis and pathologic features of hepatocellular carcinoma	K	KH	ILGT / SGD	Written / Viva voce

		Describe the etiopathogenesis, morphological findings and complications of gallstone, acute cholecystitis and chronic cholecystitis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of chronic cholecystitis	S	SH	SGD	Skill assessment
		Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features and complications of acute and chronic pancreatitis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	ILGT / SGD	Written / Viva voce
17	Urinary tract pathology	Describe the normal histology of the kidney	K	K	ILGT / SGD	Written / Viva voce
		Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical, laboratory and urinary findings, complications of acute and chronic renal failure	K	KH	ILGT / SGD	Written / Viva voce

		Perform routine urinalysis and describe abnormal urinary findings in disease states	S	P	DOAP Session / SGD	Skill assessment
		Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	ILGT / SGD	Written / Viva voce
		Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and classify diseases affecting the tubular interstitium	K	KH	ILGT / SGD	Written / Viva voce

		Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	ILGT / SGD	Written / Viva voce
		Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular diseases of the kidney	K	KH	ILGT / SGD	Written / Viva voce
		Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	ILGT / SGD	Written / Viva voce

		Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of renal stone disease and obstructive uropathy	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of polycystic kidney, pyelonephritis and granular contracted kidney	S	SH	SGD	Skill assessment
		Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	ILGT / SGD	Written / Viva voce
		Describe the renal manifestations and morphology of thrombotic angiopathies	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of renal cell carcinoma and Carcinoma bladder	S	SH	SGD	Skill assessment

18	Male genital tract pathology	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate the causes and describe the clinical and pathological features of epididymo-orchitis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, precursor lesions, progression and spread of carcinoma of penis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	ILGT / SGD	Written / Viva voce

		Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of benign prostatic hyperplasia, germ cell tumor of testis and carcinoma penis	S	SH	SGD	Skill assessment
19	Female genital tract pathology	Describe the etiology and morphologic features of cervicitis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	ILGT / SGD	Written / Viva voce

		Describe the etiology and morphologic features of adenomyosis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	ILGT / SGD	Written / Viva voce
		Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of carcinoma cervix, leiomyoma, endometrial hyperplasia and carcinoma endometrium	S	SH	SGD	Skill assessment
		Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	ILGT / SGD	Written / Viva voce

		Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of ovarian tumors, hydatidiform mole and choriocarcinoma	S	SH	SGD	Skill assessment
20	Breast pathology	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	ILGT / SGD	Written / Viva voce
		Describe and identify the gross and microscopic features of fibroadenoma and carcinoma breast	S	SH	SGD	Skill Assessment

		Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	ILGT / SGD	Written / Viva voce
21	Endocrine pathology	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	ILGT / SGD	Written / Viva voce

		Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical, laboratory features, complications and progression of diabetes mellitus	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features and complications of Cushing syndrome	K	KH	ILGT / SGD	Written / Viva voce
		Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	ILGT / SGD	Written / Viva voce
		Enumerate and describe the types, components, features and molecular alterations in MEN syndrome	K	KH	ILGT / SGD	Written / Viva voce

		Describe and identify the gross and microscopic features of colloid goiter, Multinodular goiter and papillary thyroid carcinoma, Medullary carcinoma and pheochromocytoma	S	SH	SGD	Skill Assessment
22	Bone and soft tissue pathology	Classify and describe the epidemiology, etiology, pathogenesis, manifestations, radiological, morphologic features and complications of osteomyelitis	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the epidemiology, etiology, pathogenesis, manifestations, radiological, morphologic features and complications of bone tumours	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the epidemiology, etiology, pathogenesis, manifestations, radiological, morphologic features and complications and metastases of soft tissue tumours	K	KH	ILGT / SGD	Written / Viva voce

		Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the gross and microscopic features of common bone and soft tissue tumors	S	SH	SGD	Skill Assessment
23	Dermato pathology	Enumerate and describe the pathogenesis and morphology of common skin infections	K	KH	ILGT / SGD	Written / Viva voce
		Describe the types, risk factors, pathogenesis and morphology of chronic inflammatory dermatosis and bullous skin disorders	K	KH	ILGT / SGD	Written / Viva voce

		Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of skin	K	KH	ILGT / SGD	Written / Viva voce
		Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of skin	K	KH	ILGT / SGD	Written / Viva voce
		Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	K	KH	ILGT / SGD	Written / Viva voce
		Identify, distinguish and describe common infections and tumors of the skin	S	SH	SGD	Skill Assessment
24	Neuro pathology	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	ILGT / SGD	Written / Viva voce
		Identify the etiology of meningitis based on given CSF parameters	S	SH	SGD	Skill assessment

		Describe the etiology, pathogenesis and morphology of cerebrovascular disease, demyelinating and degenerative disorders of CNS.	K	KH	ILGT / SGD	Written / Viva voce
		Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumours	K	KH	ILGT / SGD	Written / Viva voce
		Identify and describe the morphology of meningeal and nerve sheath tumors	S	SH	SGD	Skill Assessment
25	Eye pathology	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	ILGT / SGD	Written / Viva voce
26	Miscellaneous	Describe abnormal findings in body fluids in various disease states	K	KH	ILGT / SGD	Written / Viva voce
		Describe and interpret the abnormalities in a panel containing semen analysis	S	SH	SGD	Skill assessment
		Describe universal work precaution	K	K	ILGT / SGD	Written / Viva voce

		Enumerate and describe the types, indication, procedure and role of non-medico legal autopsy	K	K	ILGT / SGD	Written / Viva voce
		Enumerate and describe the common tests, sample collection, and processing in pathology laboratory	K	K	ILGT / SGD	Written / Viva voce
		Describe and write a request form for common tests performed in pathology laboratory	S	SH	SGD	Skill assessment
		Identify and describe the advanced diagnostic tests in pathology	S	SH	SGD	Skill assessment

Domain (K/S/A/C): K-Knowledge, S-Skill, A-Attitude, C-Communication.

Level of competency (K/KH/S/SH/P): K-Knows, KH-Knows How, S-Shows, SH-Shows How, P-Performs

Core (Y/N): Y-Yes, N-No

ILGT: Interactive large group teaching, SGD: Small group discussion

DOAP: Demonstrate, Observe, Assist, Perform

Topics for Integrated Teaching

Sl. No.	Topic	Type of Integration	Integrating Departments	Hours allotted for teaching
1.	Iron deficiency anemia	Vertical	Medicine, Gynecology, Pediatrics	2 hours
2.	Tuberculosis	Horizontal	Microbiology, Pharmacology	2 hours
3.	Approach to Jaundice	Vertical	Medicine, Surgery	2 hours
4.	Carcinoma cervix	Vertical	Gynecology, Community & Family Medicine	2 hours
5.	Hypertension	Vertical & Horizontal	Medicine, Pharmacology	2 hours
6.	Coronary artery disease	Vertical & Horizontal	Medicine, Pharmacology	2 hours
7.	Meningitis	Vertical & Horizontal	Microbiology, Medicine	2 hours
8.	Approach to Hemolytic anemia	Vertical	Medicine, Paediatrics	2 hours
9.	Approach to Non-Hodgkin Lymphoma	Vertical	Medicine, Paediatrics	2 hours
10.	Approach to Acute Leukemia	Vertical	Medicine, Paediatrics	2 hours
11.	Carcinoma Colon	Vertical	Surgery	2 hours

12.	Approach to Nephrotic Syndrome	Vertical	Medicine, Paediatrics	2 hours
13.	Carcinoma Breast	Vertical	Surgery	2 hours
14.	Hypothyroidism	Vertical	Medicine, Surgery	2 hours
15.	Death audit	Horizontal	Forensic Medicine	2 hours

Teaching and Learning Methodology

The department focuses on teaching the fundamentals of the disease process and the applied aspects relevant to the clinical subjects. The following teaching learning methods will be implemented:

1. Interactive large group teaching (ILGT)

A specific topic at length is discussed in a one-hour ILGT with a scenario or case in the beginning and frequent interaction with learners throughout the session. Pictures, animations, and videos are shown to learners where-ever required.

2. Student Seminar

A group of students are selected for the purpose of discussing a stated topic. Student seminars are supposed to be interactive.

3. Flipped classroom

Flipped classroom (also known as “inverting” a classroom) is a “pedagogy-first” approach to teaching in which course materials are introduced outside of class, and in-class time is re-purposed for inquiry, application, and assessment in order to better meet the needs of individual learners.

4. Small Group Discussion (SGD)

A student-centered methodology, that allows students to actively involve and be partners in the teaching-learning process. Students interact with peers and instructors, discussing, and sharing ideas.

5. Case studies

A form of SGD which is a problem-solving based approach where students are given case studies associated with a specific topic and asked to find out the diagnosis followed by interactive discussion.

6. Clinical case demonstration

A form of SGD where clinicians may demonstrate specific findings pertaining to a specific disease process which will help the student get a real-life experience of the pathology and the clinical aspects of the disease process.

7. DOAP technique (*Demonstration - Observation - Assistance - Performance*)

A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently. Total teaching duration will be 350 hours, in which 200 hours is allotted for theory including ILGT / SGD, 10 hours for integrated teaching and 140 hours for practical classes including DOAP.

Topic Wise Mark Distribution

Paper I	Topic	MCQ (No. of questions)	LAQ (No. of questions)	SAQ (No. of questions)
	Cell Injury	1	1	1
	Amyloidosis	1		1
	Inflammation and repair	1		
	Hemodynamic disorders	1		1
	Growth disturbance and Neoplasia	2		1

	Immunopathology	1		1
	Genetic & Pediatric Disorders	1	-	1
	Infectious Disorders	1	-	
	Environmental and Nutritional Disorders	1	-	
	Hematopathology & Transfusion Pathology	9	1	6
	Pathology of Lymphoreticular system	1	-	
Paper-II	Cardiovascular pathology	2	1	2
	Respiratory pathology	2		1
	Gastro-intestinal tract pathology	2		1
	Liver, biliary tract and pancreatic pathology	2		1
	Neuropathology	2	-	1
	Urinary tract pathology	2	1	1
	Male genital tract pathology	2		1
	Female genital tract pathology	2		2

	Breast pathology			
	Endocrine pathology	2		1
	Bone and soft tissue pathology			1

	Dermatopathology	2	-	
	Eye pathology		-	
	Miscellaneous		-	

Syllabus for Paper I & II

Paper I:

Section A: General Pathology

Section B: Hematopathology, Transfusion Pathology and Lymphoreticular system

Paper II:

Section A: Cardiovascular, Respiratory, Gastrointestinal, Hepatobiliary and CNS

Section B: Renal, Reproductive, Endocrine, Musculoskeletal system and Skin

Practical Examination: Paper Pattern & Marks Distribution

For final professional practical examination, 80 marks consists of the following pattern

S. No	Practical	Station X Marks	Total Marks
1.	Peripheral blood smear reporting	1X10	10
2.	Urine examination	1X10	10

3.	Spotter (Gross/ Slide/Charts/ Instruments)	10X1	10
4.	OSPE (4 stations Gross/ Slide/Charts)	4X5	20
5.	OSPE - Pathology request form writing (Histopathology/Cytopathology/Haematology)	1X5	5
6.	OSPE - Pathology Report Interpretation (1 Histopathology/Cytopathology, 1 Haematology)	2X5	10
7.	OSPE - Blood grouping and typing <i>Manned station</i>	1X5	5
8.	Record	1X10	10
Total			80

Viva pattern:

Viva consists of four tables. For each table, students will face each of the four examiners for 5 minutes each.

Table	Syllabus	Marks
Table 1	General pathology	5
Table 2	Hematopathology, Transfusion Pathology, Lymphoreticular system and Clinical Pathology	5
Table 3	Systemic Pathology I	5
Table 4	Systemic Pathology II	5
Total		20

Model question paper

Pathology

Paper - I

Time: Three Hours

Maximum Marks: 100

Each Section to be answered in separate answer book

Illustrate your answers with suitable diagrams wherever necessary

Section A – Multiple Choice Questions (MCQs)

1X20=20

(A total of twenty questions in the form of multiple-choice questions, assertion-reasoning, match the following and True or false will be included in this section from General pathology, Hematopathology, Transfusion pathology & Reticuloendothelial system)

Section B - General Pathology

Total Marks: 40

I. Long answer question

1X10=10

II. Short answer questions

6X5=30

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

Section C- Hematopathology, Transfusion Pathology & Lymphoreticular system

Total Marks: 40

I. Long answer question

1X10=10

II. Short answer question

6X5=30

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

Pathology

Paper - II

Time: Three Hours

Maximum Marks: 100

Each Section to be answered in separate answer book

Illustrate your answers with suitable diagrams wherever necessary

Section A – Multiple Choice Questions (MCQs)

1X20=20

(A total of twenty questions in the form of multiple-choice questions, assertion-reasoning, match the following and True or false will be included in this section from Systemic pathology-I & Systemic pathology-II)

Section B- Systemic Pathology- I

Total Marks- 40

(Blood Vessels and CVS, Respiratory System, GIT, Hepatobiliary tract, CNS)

I. Long answer question

1X10=10

II. Short answer questions

6X5=30

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

Section C - Systemic Pathology II

Total Marks: 40

(Renal, Male and female reproductive system, Breast, Endocrine, Musculoskeletal system, and Skin)

I. Long answer question

1X10=10

II. Short answer questions

6X5=30

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

Text Books Recommended***For Theory***

S. No	Name of Book	Authors
1	Pathologic basis of disease	Dr Robbins & Cotran's
2	Textbook of Pathology	Dr Harsh Mohan
3	Textbook of Pathology	Dr Rajeswari Kathiah
4	Textbook of Pathology	Dr A K Mondal
5	Atlas and Textbook of Hematology	Dr Tejinder Singh
6	Wheater's Functional Histology	Dr Barbara Young

For Practical

S.No	Name of Book	Authors
1	Pathology Practical book	Dr Harsh Mohan
2	Textbook of clinical pathology	Dr Kawthalkar
3	Medical laboratory technology	Dr Ramanik Sood
4	Practical Pathology	Dr Tejinder Singh
5	Practical Pathology	Dr Chakraborty

Reference books

S.No	Name of Book	Authors
1	de Gruchy's Clinical Hematology in Medical Practice	Dr. Renu Saxena et al
2	Wintrobe's Clinical Hematology	Dr. Greer JP et al
3	Rosai and Ackerman Textbook of Surgical Pathology	Dr. Goldblum JR et al
4	Rubin's Pathology – Clinicopathologic Foundations of Medicine	Dr. Strayer DS et al
5	Henry's Clinical Diagnosis and Management by Laboratory Methods	Dr. McPherson R et al

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References

1. All India Institute of Medical Sciences (AIIMS), New Delhi – Pathology Curriculum
(<https://www.aiims.edu/aiims/academic/aiims-syllabus/Syllabus%20-%20MBBS.pdf>)
2. Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry – Pathology Curriculum.
(https://jipmer.edu.in/sites/default/files/Curriculum%20Final%20MBBS%20Part%20II_0.pdf)
3. All India Institute of Medical Sciences (AIIMS), Mangalagiri – Pathology Curriculum.
4. National Medical Commission (NMC) document of competencies for MBBS students
(<https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-II.pdf>)

DEPARTMENT OF PHARMACOLOGY

“A good clinician is always a good Pharmacologist.”

Introduction

Pharmacology is the scientific study of interaction of drugs/medicines with living systems. Because great majority of patient-doctor interactions culminate in prescribing a drug(s), knowledge of Pharmacology forms the basis of modern medicine.

Vision and Mission

To impart knowledge of the pharmacological basis of therapeutics to enable the Indian Medical Graduate to prescribe rationally and make sound decisions supported by Evidence Based Medicine. To promote a learning and research environment that embraces a spirit of innovation and empowers the health professionals to adopt a patient-centered and evidence-based approach to pharmacotherapy with the aim of improving human health.

Goal

To train the undergraduate medical students with knowledge and skills to promote Safe and Rational Use of Medicines (SRUM) in the care of patient. Also, to enrich the students with knowledge and skills regarding the basic and applied medical research.

Educational objectives

(a) Knowledge

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

- i) Describe the basic pharmacokinetics and pharmacodynamics of commonly used drugs.
- ii) List the dosage, indications, contraindications, interactions, and adverse reactions of commonly used drugs.
- iii) Foresee, recognize, prevent, and manage Adverse Drug Reactions (ADR).
- iv) Indicate the use of appropriate drug in a particular disease with considerations of its cost, efficacy, and safety for - individual needs, and mass therapy under National Health Programmes.
- v) Describe the pharmacokinetic and Pharmacodynamic basis, clinical presentation, diagnosis, and management of common poisonings.

- vi) Judiciously use "Over the Counter" (OTC) drug and be aware of ill effects of social use of intoxicants.
- vii) Exercise caution in prescribing drug(s) likely to produce dependence and be aware of treatment strategies for drug dependence.
- viii) Explain pharmacological basis of prescribing drugs in special medical conditions such as pregnancy, lactation, infancy, old age, renal and hepatic impairment.
- ix) Explain the concept of rational drug therapy in clinical pharmacology.
- x) Be aware of the drug treatment guidelines laid down for diseases covered under National Health Programmes.
- xi) Understand the principles of Pharmacoeconomics.
- xii) Evaluate the ethics and modalities involved in the development and introduction of new drugs.

(b) Skills

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

- i. Prescribe drugs for common ailments.
- ii. Identify adverse reactions and interactions of commonly used drugs.
- iii. Report a suspected adverse drug reaction.
- iv. Interpret the data of experiments designed for the study of effects of drugs and bioassays which are observed during the study.
- v. Administer the drug through appropriate routes in a simulated environment.
- vi. Scan information on common pharmaceutical preparations and critically evaluate drug promotional literature.
- vii. Be well-conversant with the principles of pharmacy, drug delivery systems and dispense the medications appropriately.

(c) Attitudes & Communications

- i. Communicate with the patient effectively, ethically and with empathy on all aspects of drug use.

Teaching learning activities:

A variety of Teaching/Learning methods will be employed as deemed necessary and appropriate for the effective learning of competencies. These will include lecture-based

learning with case-based approach, small group learning, demonstration, Self-Directed Learning, Flip classroom, hands on training etc.

Teaching hours:

The teaching learning activities will be conducted for 300 hours with 120 hours dedicated to didactic/interactive lectures in theory, 180 hours for practical/ tutorials/ seminars/ small group discussions/ Self-Directed Learning and Internal Assessment/revision etc.

Integration:

Practical knowledge of rational use of drugs in clinical practice will be acquired through integrated teaching vertically with pre-clinical (I MBBS) & clinical subjects (III MBBS) and horizontally with other para clinical (II MBBS) subjects.

Computer Assisted Learning (CAL):

The department is well equipped with Computer Lab with Computer Assisted Learning (CAL) software for simulation experiments as an alternative to animal experiments. This is in accordance with the regulations on the subject which require that the use of animals must be minimized in UG teaching. By using CAL, the students can see the real time effects of the drugs on various body systems at the click of a button without the need for performing animal experiments which can cause pain and distress to the animals.

Skills lab:

This is equipped with manikins for hands on training on various routes of drug administration and gives the opportunity for repeated experiments allowing the students to learn from mistakes without harming the patients.

Future plan:

Adverse Drug Reactions Monitoring Centre (AMC):

The department of pharmacology would like to set up an Adverse Drug Reactions Monitoring Centre (AMC) under PvPI to monitor and report any adverse reactions that may be encountered during treatment. The information generated will help in continuous monitoring of the risk-benefit ratio of various medicines and help in timely intervention if required to ensure safe and rational use of medicines.

SYLLABUS OF PHARMACOLOGY

Must Know Category

General Pharmacology: 12 hours

Pharmacology: Definition, scope, various branches. Drug nomenclature. General principles and mechanism of drug action. Routes of administration of drugs, drug delivery system. Pharmacokinetics - Absorption, Distribution, Metabolism, and Excretion. Bioavailability and bioequivalence. Factors modifying drug action and drug dosage. Drug interactions, pharmacogenomics, and pharmacogenetics. Adverse drug reactions and Pharmacovigilance. The concept of therapeutic index and margin of safety. Clinical pharmacology - Basic concepts. Scope and relevance of Clinical Pharmacology. Therapeutic drug monitoring and adherence. Essential drugs and fixed dose drug combinations, Pharmacoeconomics, rational drug use, P - drugs. Phases of clinical trials. Drugs and drug combinations that are banned in India.

Autonomic Pharmacology: 12 hrs

Organization of ANS, general principles of autonomic neurotransmission. Systemic actions of neurotransmitters. Various types and subtypes of receptors. Classification, therapeutic indications, contraindications and common side effects of Cholinergic agonists and antagonists. Pharmacotherapy of organophosphorus and atropine poisoning. Pharmacotherapy of Glaucoma, Alzheimer's disease and Myasthenia gravis. Classification, therapeutic indications, contraindications and common side effects of adrenergic agonists and antagonists. Pharmacology of skeletal muscle relaxants

Autacoids and related drugs: 5 hrs

The physiology, pathophysiology and pharmacological actions of Histamine, Vasoactive peptides mainly Renin- Angiotensin- Aldosterone axis, prostaglandins, leukotriene and 5-HT. The receptors, agonists, antagonists, pharmacological actions, indications, adverse effects, and contraindications of them. Pharmacotherapy of migraine.

Cardiovascular system: 10 hrs

Pharmacology of diuretics and antidiuretics, Antihypertensive drugs - classification, mechanism of action, uses, adverse effects, drug interactions and the basis of combination therapy,

Management of hypertensive emergencies. Pharmacology of anti-anginal drugs, management of angina pectoris and myocardial infarction. Drug therapy for heart failure including cardiac glycosides. Plasma expanders and Pharmacotherapy of shock

Central Nervous System: 15 hrs

Sedative & Hypnotics - Classification, uses, adverse effect, indications and contraindications, Management of Insomnia. Antiepileptic drugs - Classification, pharmacological actions, uses, adverse effects, contraindications and selection of appropriate drug of various types of epilepsy. General anaesthetics - Cardinal features merits & demerits of commonly used anaesthetics, drug interactions, balanced anaesthesia, neuroleptanalgesia, dissociative anaesthesia and pre-anaesthetic medication. Local anaesthetic agents - Pharmacological actions, adverse drug reactions, indications, and management of complications. Opioid analgesics - Opioid receptors and their subtypes, classification, pharmacological actions, indications, contraindications, adverse effects and drug interactions of commonly used agents, Management of Opioid poisoning and de-addiction.

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) - classification, pharmacological actions, indications, contraindications, adverse effects and drug interactions of commonly used drugs, Management of overdose and toxicity. Pharmacology of drugs used in the treatment of rheumatoid arthritis and gout. Drugs used in the treatment of Parkinson's disease - classification, indications, contraindications, adverse effects and drug interactions and management of drug induced Parkinsonism. Pharmacology of ethanol and management of methanol poisoning. Pharmacology of drugs used for psychosis, anxiety, depression, and manic-depressive illness. Drugs of addiction, abuse, dependence, and principles of deaddiction of commonly abused agents like alcohol, opioids, cocaine, cannabinoids etc.

Drugs affecting blood and blood formation: 6hrs

Anti-anaemic drugs: Haematinics: Iron, folic acid, Vitamin B12. Drugs affecting coagulation: anticoagulants and their antidotes, antiplatelet drugs, fibrinolytics, Antifibrinolytics. Pharmacology of vitamin K and other haemostatics. Hypolipidemic drugs - classification, mechanism of action, indications, and adverse drug reactions

Respiratory system: 3 hrs

Asthma and COPD - classification, mechanism of action, common side effects, contraindications, drug interactions. Management of severe acute asthma. Drug delivery devices used in asthma. Pharmacology of Antitussives, expectorants, and mucolytic agents.

Gastrointestinal system: 5 hrs

Drugs for Acid Peptic Diseases - classification, mechanism of action, uses, adverse drug reactions, contraindications. Anti - H. Pylori drugs, Antiemetic and Prokinetic drugs - mechanism of action, use, side effects and adjuvant antiemetics. Pharmacology of drugs used in constipation and diarrhoea, principles for using ORS.

Drugs acting on the Endocrine system: 12 hrs

Pharmacology of Hypothalamic and Pituitary hormones

Pharmacology of Thyroid hormones and anti-thyroid drugs - Management of thyroid storm and myxoedema coma. Pharmacology of drugs used in Diabetes - Management of hypoglycaemia and Diabetic ketoacidosis (DKA). Pharmacology of Gonadal hormones – agonists, partial agonists and antagonists, SERM, SPRM- Pharmacological approaches to contraception. Pharmacology of drugs acting on uterus - Pharmacology of Adrenocortical hormone analogues and antagonists. Pharmacology of drugs affecting bone mineral homeostasis - Pharmacotherapy of osteoporosis.

Chemotherapy: 24 hrs

General principles of chemotherapy, classification of chemotherapeutic agents and rational use of antimicrobial agents. Chemotherapeutic agents - classification, mechanism of action, side effects, indications, mechanism of resistance and drug interactions of penicillins, cephalosporins, other β -lactams, β -lactamase inhibitors, aminoglycosides, broad-spectrum antimicrobial agents, quinolones, sulfonamides, macrolides, miscellaneous antibacterial agents etc. Antitubercular drugs and antileprotics. Antifungal drugs. Antiviral drugs including COVID 19 and Antiretroviral drugs. Antimalarial, antiamoebic and other antiprotozoals. Anthelmintic drugs.

Anticancer drugs: 4 hrs

Principles of cytotoxic chemotherapy, endocrine therapy, and targeted therapy; examples of major groups of cytotoxic drugs with their broad mechanisms of action and indications, use of

hormonal drugs in cancer, examples of more commonly used targeted drugs (e.g., receptor tyrosine kinase inhibitors and monoclonal antibodies like trastuzumab) with their advantages over conventional chemotherapy, precautions and toxicity amelioration for cytotoxic drugs. Immunomodulators.

Toxicology: 2hrs

General principles in the management of poisoning including snake bite and insect stings. Chelating agents and management of heavy metal poisoning. Management of overdosage of commonly used therapeutic agents and their antidotes.

Miscellaneous: 10 hrs

Drug therapy in special situations (pregnancy, lactation, paediatrics, geriatrics, renal and hepatic diseases). Dermatological pharmacology - Principles of drug application, vehicles, and formulations, keratolytic agents, drug therapy of bacterial, viral, fungal infections and allergic skin disorders, Management of psoriasis. Vitamins. Essential Medicine list. Commonly used fixed drug combinations. National health programs (communicable and non -communicable diseases). Drug interactions and their mechanism. Activities under PvPI & AEFI programmes.

Desirable To Know Category

General Pharmacology

Drugs and drug combinations that are banned in India. Molecular mechanism of drug action. Drug regulation & drug acts, legal aspects, inventory control. Drug dose relationships and basic principles of bioassay and bio standardisation. Drug abuse in sports.

Autonomic Pharmacology

Drugs acting on autonomic ganglia.

Autacoids and related drugs

Pharmacology of platelet activating factor and bradykinin. Drugs for vertigo.

Central Nervous System

Endogenous opioid peptides and their functions. Pharmacotherapy of osteoarthritis. CNS stimulants and cognition enhancers. Drugs used in the treatment of Alzheimer's dementia other than Anticholinesterases.

Cardiovascular system

Pharmacology of antiarrhythmic drugs. Other vasoactive peptides and Nitric Oxide. Pharmacological management of peripheral vascular diseases. Plasma expanders and management of shock. Drugs affecting blood and blood formation: hematopoietic growth factors

Respiratory system

Management of COPD.

Gastrointestinal system

Emetics. Digestants and gallstone dissolvent. Anti-obesity drugs. Appetite stimulants. Drug therapy for inflammatory bowel diseases and irritable bowel syndrome.

Drugs acting on the Endocrine system

Drugs in the management of infertility. Management of erectile dysfunction. Pharmacology of melatonin & analogues. Glucagon.

Chemotherapy

Newer antimicrobial agents, Antimicrobial Stewardship

Miscellaneous

Vaccines and sera. Antiseptics and disinfectants. Therapeutic gases. Ocular pharmacology other than antiglaucoma drugs. Phases of clinical trials and ethical considerations in drug development including Declaration of Helsinki, the role of institutional ethics committee and informed consent in clinical studies

Nice To Know Category

General Pharmacology

Pharmacokinetics - a brief overview of compartment models. Membrane Transporters. Chronopharmacology. Ethnopharmacology, Pharmacoepidemiology, Materiovigilance and Hemovigilance.

Central Nervous System

Designer drugs. Drugs used in Multiple Sclerosis. Nicotine Dependence. Management of stroke.

Cardiovascular system

Mechano-pharmacology: Drug-eluting stents.

Respiratory System

Pharmacotherapy of Pulmonary arterial hypertension.

Chemotherapy

National treatment guidelines for antimicrobial use in infectious diseases

Cancer chemotherapy - Monoclonal antibodies - Nomenclature, applications, adverse effects.

COMPETENCIES AND SPECIFIC LEARNING OBJECTIVES IN PHARMACOLOGY

S. No	COMPETENCY The student should be able to	Specific Learning Objective SLO	Domain K/S/A/C	Level K/KH /SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Vertical Integration	Horizontal Integration
1.	Define and describe the principles of pharmacology and pharmacotherapeutics	At the end of this session, the student should be able to: 1. Define a “drug”, describe the drug nomenclature and nature & sources of drugs 2. Explain the terms Pharmacology, clinical pharmacology & therapeutics, Toxicology. 3. Explain the components of pharmacokinetics, and pharmacodynamic principles. Enumerate and explain sources of drug information like	K	K	Y	Lecture / small group discussion	Written / Viva voce		

		Pharmacopoeia, Martindale 4. Understand the concept of safe and rational use of medicines							
2.	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	At the end of this session, the student should be able to: 1. Understand the concept of Evidence Based Medicine 2. Ascertain strength of evidence-based treatments and understand the guidelines in different therapeutic areas	K	KH	Y	Lecture/ Small group discussion	Written / Viva voce		
		At the end of this session, the student should be able to 1. Explain the concept of TDM 2. Enlist the drugs that require TDM * TDM to be covered after PK/PD				Lecture			
3.	Enumerate and identify drug formulations and drug delivery systems	At the end of the session, the students should be able to: 1. Define dosage form, formulation and excipient, enumerate different dosage forms with an example of each.	K/S	SH	Y	Practical/ Small group discussion	Written / Viva voce		

		2. Choose appropriate formulation based on clinical needs. 3. Describe the new/novel drug delivery systems with their advantages over the conventional ones							
4.	Describe absorption, distribution, metabolism & excretion of drugs	At the end of the session the student should be able to: 1. Explain the term Pharmacokinetics (PK) 2. Explain the four phases of PK with clinical relevance. Drug Absorption 1. Explain various bio transportation methods involved in ADME. 2. Explain the concept of bioavailability and describe the factors affecting bioavailability, Explain the Concept of bioequivalence Drug Distribution 1. Explain the distribution of drugs	K	KH	Y	Lecture	Written / Viva voce		

		across body compartments, barriers of distribution. 2. Explain (apparent) volume of distribution, Protein binding of drugs- clinical significance. 3. Describe redistribution of drugs with clinical relevance							
		Drug Metabolism/Biotransformation (Elimination) 1. Define biotransformation and explain its importance. 2. Define first pass metabolism and explain its importance. 3. Explain various phase 1 and phase 2 reactions. 4. Explain factors that affect biotransformation. 5. Explain the clinical significance of enzyme induction and inhibition	K	KH	Y	Lecture			

		Elimination: 1. Explain plasma half-life and its clinical significance 2. Explain the different kinetics of elimination and their clinical significance 3. Define steady state concentration and explain its significance 4. Understand the concepts of clearance, loading dose and maintenance dose 5. Describe the various routes of excretion of drugs	K	KH	Y	Lecture			

5.	Describe general principles of mechanism of drug action	At the end of the session the student should be able to: Describe the basic principles of Pharmacodynamics 1. Explain the terms –affinity, efficacy/ intrinsic activity & potency with their clinical relevance 2. Define the terms –agonist, antagonist, partial agonist & inverse agonist. 3. Enumerate different types of receptors based on signal transduction mechanisms with examples	K	KH	Y	Lecture /Small group discussion	Written / Viva voce		
		At the end of the session the student should be able to: 1. Describe dose-response relationship and interpret dose- response curves 2. Explain drug synergism, antagonism, tolerance and tachyphylaxis with examples 3. Describe factors modifying drug	K	KH	Y	Lecture / Small group discussion			

		action and their clinical implications 4. Explain therapeutic index and certain safety factor with clinical significance							
6.	Describe principles of Pharmacovigilance & ADR reporting systems	At the end of the session the student should be able to 1. Explain the history, need and principles of pharmacovigilance 2. Discuss various methods/systems of ADR reporting 3. Discuss Pharmacovigilance program of India 4. Fill in a suspected ADR reporting form	K	KH	Y	Practical	Written / Viva voce		
7.	Define, identify and describe the Management of adverse drug reactions (ADR)	At the end of the session the student should be able to 1. Define an ADR, AE and toxicity 2. Explain the frequency of ADRs and their impact on public health 3. Describe the common classification	K/S	KH	Y	Lecture	Written / Viva voce		

		of ADRs with examples 4. Describe the general management of ADRs. 5. Explain the importance of monitoring in prevention of ADRs.							
8.	Identify and describe the management t of drug interactions	At the end of the session, student should be able to 1. Define Drug interactions. 2. Describe the types of Drug interactions as In vivo, In vitro & PK and PD with suitable examples 3. Describe Drug–drug; drug-food; and other interactions with examples 4. Identify the sources of information about Drug Interactions	K/S	KH	Y	Lecture/ Small Group Discussion	Written / Viva voce		
9.	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct	At the end of the session, student should be able to 1. Define a prescription and understand the importance of each part of prescription 2. Write an unambiguous, legible,	K/S	KH	Y	Practical/ Small Group Discussion	Written / Viva voce		

	appropriately	complete and legally valid prescription 3. Carryout prescription audit							
10.	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	At the end of the session, student should be able to 1. Enumerate various routes of drug administration-oral, parenteral and topical with examples 2. Describe the merits and de-merits of each route 3. Choose the correct route of drug administration in a given clinical condition	K/S	KH	Y	Lecture, Small group discussion	Written / Viva voce		
11.	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction.	At the end of the session, student should be able to. 1. Calculate appropriate doses for individual patients based on age, body weight, and surface area. 2. Calculate the dose of drug using appropriate formulae for a given	K/S	KH	Y	Practical	Written / Viva voce	Pediatric s, General Medicine	

		clinical condition in children, and elderly. 3. Calculate the dose of drug using appropriate formulae for a given clinical condition in patients with renal dysfunction							
12.	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	At the end of the session, student should be able to 1. Describe the organization of autonomic nervous system and neurotransmission 2. Classify adrenergic receptors with respect to their structure, localization and post receptor signal transduction mechanisms	K/S	KH	Y	Small group discussion	Written / Viva voce		
		1. Classify adrenergic agonists based on their receptor selectivity. 2. Describe the pharmacological actions of adrenaline and correlate with therapeutic uses and adverse effects				Lecture			

		1. Differentiate between adrenaline, nor-adrenaline, isoprenaline and dopamine etc. with respect to receptor selectivity, pharmacological effects, adverse effects and therapeutic uses.				Small group discussion			
		1. Classify antiadrenergics based on site of action. 2. Classify alpha-adrenergic receptor antagonists. 3. Describe the pharmacological effects and, ADRs, and therapeutic uses of them 4. State the advantages of other selective alpha1 antagonists over prazosin, co-relating the same with their therapeutic uses				Lecture			
		1. Classify beta-adrenergic receptor antagonists with examples and mention the indications, ADRs, precautions and contra-indications of them.				Lecture			

		1. State the advantages of selective beta1 antagonists over nonselective beta antagonists correlating the same with their therapeutic uses and ADRs. 2. Explain the preferred beta blockers with rationale for their use in Glaucoma, CHF, Angina, Hypertension, Thyrotoxicosis, Arrhythmias etc..				Lecture/ Small group discussion			
	1 Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	At the end of the session, student should be able to 1. Classify cholinergic receptors with their structure, localization, and post receptor signal transduction mechanisms	K	KH	Y	Lecture/ Small group discussion	Written / Viva voce		
		2. Classify cholinomimetic drugs based on receptor selectivity and actions 3. Describe the pharmacological actions of direct acting cholinomimetic drugs				Lecture			

		4. Compare the effects of muscarinic agonists on the basis of selectivity and therapeutic uses, adverse effects and contraindications							
		5. Describe the metabolism of Acetylcholine. 6. Classify anti-cholinesterase agents Mention their uses, and adverse effects 7. Outline the management of myasthenia gravis, Alzheimer's disease				Lecture			
		8. Describe the signs and symptoms of organophosphate poisoning and its management with pharmacological basis				Small group discussion			
		10. Classify cholinergic receptor antagonists giving examples of muscarinic and nicotinic (Nn: ganglion, Nm: Neuromuscular) blockers 11. Describe pharmacological actions, therapeutic uses adverse effects,				Lecture			

		contraindications of atropine							
		12. State the advantages of atropine substitutes over atropine and state their clinical uses giving suitable examples				Small group discussion			
14	Describe mechanism(s) of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	At the end of this session student should be able to 1. Classify skeletal muscle relaxants. 2. Explain mechanisms of action of skeletal muscle relaxants(competitive) non-depolarizing blockers and persistent depolarizing blockers. 3. Enumerate clinical uses of skeletal muscle relaxants. 4. Describe the important drug interactions and adverse effects that occur with skeletal muscle relaxants. 5. Compare centrally, peripherally and directly acting skeletal muscle	K	KH	Y	Lecture	Written / Viva voce	Anesthesiology, Physiology	

		relaxants.							
15	Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti- histaminics, 5-HT modulating drugs, drugs for migraine	At the end of this session student should be able to 1. Understand the role of histamine and bradykinin in different physiological and pathophysiological processes. 2. Classification, therapeutic uses and adverse effects of H1- receptor antagonists. Advantages of second generation over first	K	KH	Y	Lecture	Written / Viva voce	General Medicine	
		At the end of this session student should be able to 1. Name and describe the salient features of important 5-HT receptor sub types. 2. Describe the physiological and pathophysiological role of 5- Hydroxytryptamine 3. Describe drugs acting at 5HT receptors				Lecture		General Medicine	

		4. Understand the pathophysiology of migraine. 5. Describe the mechanism of action, adverse effects, contraindications and important drug interactions of anti-migraine drugs							
16	Describe the mechanism(s) of action, types, doses, side effects, indications and contraindications of local anesthetics	At the end of this session student should be able to 1. Define anaesthesia, types of anaesthesia. 2. Classify local anaesthetics. 3. Distinguish between the salient features of general and local anaesthesia. 4. Describe mechanism of action, pharmacokinetics of commonly used local anaesthetics. 5. Describe the adverse effects, precautions and drug interactions with local anaesthetics. 6. Describe the techniques of administration of local anaesthetics	K	KH	Y	Lecture	Written / Viva voce	Anaesthesia	

		and their relevance in clinical practice. 7. Explain the complications of spinal anaesthesia. 8. Explain rationale of combining local anesthetics with adrenaline							
17	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of general anesthetics, and pre- anesthetic medications	At the end of this session student should be able to 1. Define general anaesthesia and explain stages of General Anaesthesia. 2. Describe the concepts of partial pressure, solubility, MAC, partition coefficients (blood: gas, oil: gas) 3. Describe the mechanisms of action of general anaesthetics. 4. Enumerate the properties of ideal general anaesthetics 5. Classify general anaesthetics and explain the pharmacokinetics of general anaesthetics.	K	KH	Y	Lecture	Written / Viva voce	Anesthesiology	

		6. Describe the pharmacological actions and adverse effects of general anaesthetics. 7. Enumerate the complications and the important drug interactions with general anaesthetics. 8. Uses and adverse effects of IV anesthetics 9. Define preanesthetic medication, objectives of pre-anaesthetic medication and rationality of use of drugs							
18	Describe the mechanism(s) of action, types, doses, side effects, indications and contraindications of the drugs acting on CNS, (sedatives & hypnotics, general anesthetics, local	At the end of this session student should be able to 1. Define Sedatives and Hypnotics, anxiolytics 2. Describe the different phases of Sleep. 3. Classify Sedative and Hypnotics. 4. Describe the mechanism of action, uses, adverse effects and precautions with long term use and	K	KH	Y	Lecture	Written / Viva voce	Psychiatry, Physiology	

	anesthetics, antiseizure anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, NSAIDS, drugs for Gout, Rheumatoid arthritis, drugs used for neurodegenerative disorders)	important drug interactions. 5. Advantages of benzodiazepines over barbiturates.							
		At the end of this session student should be able to 1. Define Psychosis and enumerate different types of psychoses. 2. Explain the pathophysiology of Psychoses. 3. Classify Psychotropic drugs. and Antipsychotic drugs. 4. Describe the pharmacokinetics, mechanism of action, uses and adverse effects of Antipsychotic drugs. 5. Explain the advantages of atypical (second generation) Antipsychotics over typical (classical) drugs.				Lecture			
		At the end of this session student should be able to 1. Define Depression, enumerate				Lecture			

		different types and explain the pathophysiology of Depression. 2. Classify Antidepressant drugs. 3. Describe the mechanism of action, adverse effects and drug interactions of Antidepressants. 4. Outline the management of acute poisoning with tricyclic antidepressants. 5. Define Mania, and classify Antimanic drugs. 6. Describe mechanisms of action, adverse effects and drug interactions of Lithium. 7. Describe the therapeutic uses of Lithium and newer drugs used for mania with their status in management of mania 8. Enumerate Psychotomimetic drugs.							
		At the end of this session student should be able to Classify opioid receptors, opioid				Lecture			

		peptides, opioid analgesics, indications, adverse effects, and contraindications for the use of morphine and other opioids 1. Classification and MOA Non-Steroidal Anti-Inflammatory Drugs 2. Describe the therapeutic uses of NSAIDs and enumerate doses of most commonly used NSAIDs. 3. List out the adverse effects, drug interactions and contraindications of NSAIDs. Outline the management of Salicylate poisoning and Paracetamol poisoning.							
		At the end of this session student should be able to 1. Explain pathophysiology of rheumatoid arthritis 2. Classify drugs (DMARDs) used in rheumatoid arthritis. 3. Describe the mechanism of action and adverse effects of anti-				Lecture			

		rheumatoid drugs. 4. Explain the pathophysiology of Gout. 5. Classify drugs used for Gout. 6. Describe mechanism of action, adverse effects of drugs used for Gout.							
		At the end of the session the student should be able to 1. Enumerate various neurodegenerative diseases 2. Describe Parkinsonism and its pathophysiology. 3. Classification and MOA of drugs. 4. Describe mechanism of action and adverse effects of Antiparkinsonian drugs. 5. Drugs used in Alzheimer's disease				Lecture			
19	Describe the effects of acute and chronic ethanol intake	At the end of the session student should be able to 1. Describe the pharmacokinetics of	K	KH	Y	Lecture, Small group	Written / Viva voce	Psychiatry	

		ethanol. 2. Describe the important drug interactions with ethanol principles of alcohol de addiction. 3. Describe drugs used in alcohol de addiction				discussion			
20	Describe the symptoms and management of methanol and ethanol poisonings	At the end of this session the student should be able to 1. Describe the symptoms of methanol poisoning. 2. Describe the management of methanol poisoning.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce	General Medicine	
21	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	At the end of the session the student should be able to 1. Define drug addiction and drug dependence. 2. List the pharmacological classes of drugs of abuse. 3. Classify the drugs of abuse based on the CNS effects (stimulants, depressants, hallucinogens) with examples.	K	KH	Y	Lecture	Written / Viva voce	Psychiatry	

		4. Give examples of hallucinogens. 5. Describe the source, pharmacological effects, withdrawal symptoms and the management of drugs of addiction							
22	Describe the process and mechanism of drug deaddiction	At the end of the session the student must be able to 1. Outline the general principles and steps in the management of drug deaddiction 2. Explain the mechanism of action of the drugs used in drug deaddiction	K/S	KH	Y	Small group discussion / SDL	Written / Viva voce	Psychiatry	
23	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics-	At the end of the session, the student must be able to 1. Classify diuretics based on their efficacy and site of action with examples 2. Explain the mechanism of action, adverse effects indications and contraindications of diuretics and antidiuretics- vasopressin and analogs	K	KH	Y	Lecture	Written / Viva voce		

	vasopressin and analogues								
24	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	(Coagulants and anti-coagulants) At the end of the session the student must be able to 1. Describe the coagulation cascade 2. Enumerate the coagulants used clinically 3. Explain the mechanism of action, adverse effects, drug interactions, uses and contraindications of anticoagulants: indirect thrombin inhibitors, direct thrombin inhibitors, factor Xa inhibitors, Vitamin K antagonists, 4. Describe the advantages and disadvantages of low molecular weight heparin 5. Explain the treatment of Heparin overdose 6. Explain the dose regulation and monitoring of patients while on anti-	K	KH	Y	Lecture	Written / Viva voce	Physiology General medicine	

		coagulants with reference to parameters such as INR and aPTT.							
		At the end of the session the student must be able to 1. Explain the role of platelets in haemostasis 2. Classify anti-platelet drugs based on their mechanisms of action with examples 3. Explain Uses, adverse effects, and contraindications of antiplatelet drugs							
		At the end of the session the student must be able to 1. Classify plasma expanders with examples 2. Compare crystalloids and colloids 3. Describe the adverse effects and precautions while using plasma							

		expanders 4. Describe the therapeutic uses of plasma expanders							
25	Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin- angiotensin and aldosterone system	At the end of the session, the student must be able to 1. Explain the role of Rennin - Angiotensin- Aldosterone system (RAAS) in cardiovascular diseases 2. Enumerate the drugs that modulate RAAS 3. Describe the mechanism of action uses, adverse effects, and contraindications of ACE Inhibitors and ARAs	K	KH	Y	Lecture/ SDL	Written / Viva voce	Physiology, General medicine	

26	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	At the end of the session the student must be able to 1. Categorize hypertension as per current JNC 2. Classify anti-hypertensives based on their site and mechanism of action with examples 3. Describe the adverse effects, contraindications drug interactions of antihypertensives 4. Discus combination of drugs 5. Describe which drugs are most effective in treating individual hypertensive patients with specific comorbidities, including diabetes mellitus, congestive heart failure, and renal disease. 6. Explain the management of hypertensive crisis	K	KH	Y	Lecture and Small group discussion On clinical case scenario	Written / Viva voce	General medicine	
		At the end of the session, the student must be able to				Small group	Written / Viva voce		

		1. Define shock and enumerate different types of shock 2. Explain the pathophysiology of shock and describe the management of different types of shock with pharmacological basis				discussion / SDL			
27	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	At the end of the session the student should be able to 1. Define angina pectoris 2. Explain the various types of angina pectoris describing their underlying pathology 3. Classify anti-anginal drugs 4. Describe the mechanism of action, pharmacological actions, adverse effects and therapeutic uses, routes of administration, doses and preparations of Nitrates, CCBs 5. Compare Dihydropyridines with Phenylalkylamines 6. Describe the role of beta blockers in angina	K	KH	Y	Lecture	Written / Viva voce	General Medicine	

		7. Describe the mechanism of action, anti-anginal actions, adverse effects ,and the indication for the use of potassium channel openers(nicorandil) in angina pectoris 8. Describe the role of metabolic modifiers and other new drugs							
		At the end of the session the student must be able to 1. Explain the pathophysiology of myocardial infarction 2. Explain the steps in the use of drugs in myocardial infarction with the rationale for using them 3. Understand how to prevent re-infarction				SDL followed by small group discussion	Written / Viva voce		
28	Describe the mechanism s of action, types, doses, side effects, indications and	At the end of the session, the student should be able to 1. Describe various types of heart failure and pathophysiology of heart failure.	K	KH	Y	Lecture	Written / Viva voce	General Medicine	

	contraindications of the drugs used in congestive heart failure	- Describe the rationale for the use of drugs that slow the progression of heart failure - Describe the mechanism of action of inotropic drugs and how they are used to maintain left ventricular function. - Identify the major side effects and adverse drug reactions of the drugs used to treat heart failure. - Describe the Management of Digitalis Toxicity - Treatment of acute decompensated heart failure							
29	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	At the end of the session, student should be able to - Describe the principles of cardiac electrophysiology, pathophysiology of arrhythmias. - Classify antiarrhythmic drugs (Vaughan- Williams)	K	KH	Y	Lecture	Written / Viva voce	General Medicine	

		3. Mechanism of action, uses, adverse effects and contraindications of antiarrhythmic drugs							
30	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in the management t of dyslipidemias	At the end of the session, student should be able to 1. Describe lipid metabolism, different classes of lipoproteins and their role 2. Describe the pathophysiology of primary and secondary hyperlipoproteinemias 3. Mention the classification of hypolipidemic drugs 4. Describe the mechanism of action, pleiotropic effects, indications adverse effects, drug interactions of statins, fibrates and other drugs	K	KH	Y	Lecture/ small group discussion	Written / Viva voce	General Medicine	

31	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	At the end of the session, student should be able to	K	KH	Y	Lecture	Written / Viva voce	Respirat ory Medicine	
		1. Describe the pathophysiology of Bronchial Asthma and COPD 2. Classification of anti-asthmatic drugs 3. Discuss the mechanism of action, Adverse effects of beta2 agonists, methyl xanthines, corticosteroids, anti-cholinergics, mast cell stabilizers, leukotriene antagonists, anti-IgE antibodies in asthma. 4. Discuss management of severe acute asthma							
		5. Describe the step wise management of Bronchial asthma (GINA guidelines) 6. Describe the management of acute severe asthma 7. Describe the advantages and disadvantages of inhalational devices like MDI, Rotahaler, spacer, nebulizer				Small group discussion			

32	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussive s, expectorant s/ mucolytics)	At the end of the session, student should be able to 1. Explain the physiology of cough pathway. 2. Enumerate various causes of cough 3. classify the drugs used in cough 4. Explain the mechanism of action, indications and adverse effects of pharyngeal demulcents, expectorants, mucolytics and anti-tussives with examples	K	KH	Y	SDL	Written / Viva voce	Respiratory Medicine	
33	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid- peptic disease and GERD 2. Antiemetics and	At the end of the session, student should be able to 1. Explain the physiology of vomiting and role of various neurotransmitters 2. Classification of anti-emetics 3. Describe the mechanism of action, adverse effects and indications of D₂ blockers, antihistaminics, anticholinergics, 5HT₃ antagonists, NK₁ antagonists, cannabinoid	K	KH	Y	Small Group Discussion / SDL	Written / Viva voce	General Medicine	

	prokinetics	receptor antagonists...							
	3. Antidiarrheals	4. Enumerate the drug of choice							
	4. Laxatives	antiemetic in post-operative							
	5. Inflammatory Bowel Disease	vomiting, cancer chemotherapy induced vomiting, pregnancy...							
	6. Irritable bowel syndrome	5. Explain the physiology of gastric acid secretion				Lecture			
		6. Classify the drugs used for APD, their mechanism of action, therapeutic uses and adverse effects							
		7. Role of H. pylori in peptic ulcer and anti H. pylori regimens							
		8. Explain the pathophysiology of constipation				Small Group Discussion			
		9. Classify laxatives/purgatives							
		10. Explain the mechanism of action, indications, contra-indications and adverse effects of bulk laxatives, stool softeners, stimulant purgative, osmotic purgative and prokinetic agents							

		11. Classify antidiarrheal agents. 12. Enumerate the principles of management of Diarrhoea 13. Discuss the advantages of new formula (reduced osmolarity) WHO-ORS versus the older composition. 14. Explain the role of Zinc in pediatric diarrhea				Practical			
		15. Explain the pathophysiology and pharmacotherapy of Irritable bowel syndrome, Inflammatory bowel disease				SDL			
34	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like:	At the end of the session, student should be able to 1. Enumerate different types and causes of anaemias 2. Explain iron metabolism 3. List the oral and parenteral iron preparations with merits and demerits and specific indications 4. Explain pathophysiology of	K	KH	Y	Small Group Discussion / SDL	Written / Viva voce	General Medicine , Physiology	

	1. Drugs used in anemias 2. Colony Stimulating factors	megaloblastic anaemia, explain the role of vitamin B ₁₂ , Folic acid in haematopoiesis along with sources and daily requirements 5. Enumerate various hematopoietic growth factors and their uses							
35	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders	1. Explain blood glucose homeostasis 2. Pathophysiology and Types of Diabetes mellitus 3. Enumerate insulin preparations, describe the mechanisms of action of insulin and the other antidiabetic drugs. 4. Describe the adverse effects of insulin and other antidiabetic drugs. 5. Discuss the management of diabetic ketoacidosis and hyperosmolar (nonketotic) coma	K	KH	Y	Lecture-	Written /Viva voce		

		1. Discuss the physiology of thyroid hormone regulation. 2. Describe the diagnosis and treatment of hypothyroidism and hyperthyroidism				Lecture-	Written /Viva voce		
		• Explain bone mineral homeostasis. • Describe the roles of PTH, calcitonin, vitamin D, and FGF • Describe the mechanism of action and untoward effects of bisphosphonates. • Describe the role of bisphosphonates in the prevention and treatment of osteoporosis. • Describe the pharmacological management of hypocalcemia and hypercalcemia.				Lecture-	Written / Viva voce		
36	Describe the mechanism s of action, types, doses,	1. Describe the functioning of the hypothalamic-pituitary- target endocrine gland axis.				Lecture-	Written / Viva voce	Obstetric s and Gynaeco	

	side effects, indications and contraindications of the gonadal hormones, their analogues and anterior Pituitary hormones	- Describe the pharmacotherapy of GH excess and GH deficiency. - Explain clinical uses of gonadotropin-releasing hormone (GnRH) and its analogs and antagonists.						logy	
		- Describe physiological secretion and regulation of androgens - Explain mechanism of action, uses and adverse effects of anabolic steroids and anti-androgens - Describe drug therapy of BPH, prostate cancer				Lecture-			
		- Describe physiological secretion and regulation of estrogen and progesterone. - Describe the therapeutic uses and ADRs of postmenopausal HRT - Describe mechanism of action, uses, adverse effects and				Lecture-			

		contraindications of oestrogen, SERM, antiestrogens, aromatase inhibitors, progestins, anti progestins and SPRM. 4. Explain various drugs used in treatment of infertility 5. Enumerate various oral contraceptives, mechanism of action of oral contraceptives, adverse effects, contraindications and non-contraceptive uses of combined OCPs 6. Enumerate Implantable contraceptives, male contraceptives							
37	Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids	1. Explain physiology of biosynthesis, actions, hypo and hyper secretion of corticosteroids 2. Classify glucocorticoids based on potency, mineralocorticoid activity, duration of action 3. Describe distinctive features,	K	KH	Y	Lecture-	Written / Viva voce	General Medicine	

		uses, adverse effects and contraindications of various glucocorticoids preparations 4. Understand the effect of abrupt cessation of glucocorticoid therapy after long-term treatment							
38	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	1. Classify female contraceptives preparations 2. Explain all types with mechanism of action, uses adverse effects, contraindications, and practical considerations of female contraceptives.	K	KH	Y	Lecture	Written / Viva voce	Obstetrics and Gynaecology	
39	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in	At the end of this theory session the student should be able to 1. Describe the causes of infertility 2. Enumerate drugs used in the treatment of infertility 3. Describe the mechanism of action of drugs used in the treatment of infertility 4. Enumerate drugs used in erectile	K	KH	Y	Lecture-	SDL/ small group Discussion	Obstetrics & gynaecology	

	erectile dysfunction	dysfunction 5. Describe the mechanism of action of drugs used in erectile dysfunction							
40	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	At the end of the session the student must be able to a. Classify uterine stimulants b. Explain mechanism of action, uses, adverse effects and contraindications of each group c. Classify uterine relaxants. d. Explain mechanism of action, uses, adverse effects and contraindications of each group	K	KH	Y	SDL/small group Discussion	Written / Viva voce	Obstetrics and Gynaecology	
41	Describe general principles of chemotherapy Beta lactams, sulfonamides, protein	At the end of the session the student must be able to 1. State general principles of chemotherapy 2. Classify the chemotherapeutic agents based on chemical structure,	K	KH	Y	Lecture	Written / Viva voce		

	synthesis inhibitors, fluoroquinolones, Miscellaneous anti microbials	mechanism of action, source 3. Describe common problems encountered with use of chemotherapeutic agents 4. Describe anti-microbial resistance and discuss monitoring of antimicrobial therapy 5. Enumerate the factors to be considered for choosing an antimicrobial agent 6. Mention the advantages and disadvantages of antimicrobial combination with examples Beta lactams 1. Enumerate beta lactam antibiotics 2. Explain the mechanism of action, mechanism of resistance to β-lactam antibiotics. 3. Describe the therapeutic uses of the penicillins, cephalosporins, and other β-lactam antibiotics. 4. Describe the untoward effects and							

		contraindications of β-lactam antibiotics. 5. Describe pharmacological basis of combining beta-lactamase inhibitors with beta lactam antibiotics and various combinations. Sulfonamides & Quinolones 1. Explain the mechanism of action of sulfonamide drugs, uses. 2. Explain the therapeutic uses and untoward effects of sulfonamide drugs including cotrimoxazole 3. Describe, mechanisms of action, uses and adverse effects of fluoroquinolones Aminoglycosides 1. Enumerate aminoglycosides 2. Explain mechanisms of							

		action and resistance. 3. Describe the advantages of once daily administration of total daily dose Other Protein Synthesis Inhibitors and Miscellaneous Antibacterial Agents 1. Describe the mechanisms of action, ADR and resistance of tetracyclines, macrolides, vancomycin, linezolid, daptomycin, and streptogramins 2. Explain how linezolid, quinupristin/dalfopristin are used to treat MRSA and VRE							
42	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	At the end of the session the student must be able to 1. Enumerate the factors influencing the antimicrobial selection, duration and dose 2. Define empirical treatment 3. Explain mechanisms by which microorganisms develop	K	KH	Y	Lecture	Written / Viva voce	General Medicine , Pediatrics	

		antimicrobial resistance 4. Understand the principles of antimicrobial selection for a specific organism 5. Explain rational use of antimicrobials							
43	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses	At the end of the session the student must be able to 1. Enumerate various anti-tubercular drugs. 2. Describe the mechanism of action, ADR, drug interactions and resistance to antitubercular drugs. 3. Understand the rationale for combination drug therapy in the treatment of tuberculosis 4. Describe and discuss the salient features, diagnostic criteria and guidelines for treatment of tuberculosis under NTEP.	K	KH	Y	Lecture	Written / Viva voce	Respiratory Medicine	
44	Describe the drugs used in MDR and	At the end of the session the student must be able to	K	KH	Y	Lecture/ small	Written / Viva voce	Respiratory	

	XDR Tuberculosis	1. Define MDR and XDR TB 2. List drugs, mechanism of action, indications, contraindications and adverse effects of drugs used in MDR and XDR Tuberculosis. 3. Explain the regimen for MDR and XDR tuberculosis				group discussion		Medicine	
45	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	At the end of this session the student should be able to 1. Describe the principles of anti-leprosy therapy. 2. Describe the mechanism of action, ADR of antileprotic drugs 3. Discuss the management of leprosy and treatment of Lepra reactions.	K	KH	Y	Lecture	Written / Viva voce	Dermatology, Venereology & Leprosy	
46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-	At the end of this session student should be able to: 1. Classify antimalarial drugs based on the stage of life cycle targeted by drugs. 2. Explain the use of antimalarial drugs in clinical context with	K	KH	Y	Lecture	Written / Viva voce	General Medicine	

	AZAR, amebiasis and intestinal helminthiasis.	regard to their mechanism of action, therapeutic uses, and toxicities. 3. Describe the principles and guidelines for the chemoprophylaxis and treatment of chloroquine resistant falciparum At the end of this theory session student should be able to 1. Enumerate drugs used in KALA-AZAR 2. Describe the mechanism of action, adverse effects of drugs used in KALA-AZAR At the end of this session the student should be able to: 1. Enumerate drugs used for amoebiasis. 2. Describe the mechanism of action uses and adverse effects of them At the end of this theory session student should be able to:							

		1. Describe the common helminth infections, the clinical symptoms, and the mainstays of therapy. 2. Explain the mechanisms of action, toxicities and contraindications of anthelmintic drugs.							
47	Describe the mechanisms of	At the end of this session student should be able to:	K	KH	Y	Lecture	Written / Viva voce		

	action, side effects, other indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV & Antifungal drugs	1. Enumerate the causative organisms and drugs used for UTI 2. Describe the mechanism of action and adverse effects of drugs used for UTI At the end of this session student should be able to: 1. Enumerate common STDs and drugs used for them. 2. Describe the mechanism of action, ADR, precautions and contraindications of drugs used in STD Antifungal drugs 1. Describe the mechanisms of action, therapeutic uses and ADR of antifungal agents 2. Explain the drug-drug interactions that can occur with the use of azole antifungal agents.							

		At the end of the session student should be able to 1. Explain the treatment of herpes virus infections and the use of anti-herpes drugs. 2. Discuss the treatment strategies for chronic hepatitis B and C infections. 3. Explain the mechanisms of action and resistance, and the therapeutic use of the anti-influenza agents. 4. Discuss the principles of HIV chemotherapy as per National guidelines including HAART regimens. 5. Describe the mechanisms of action and resistance, the untoward effects, and the therapeutic uses of the drugs used to treat HIV infections. 6. Enumerate drugs used in COVID 19							

48	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs.	At the end of the session the student must be able to 1. Describe cell cycle kinetics, (Gompertzian) Pathophysiology of cancer 2. Discuss the general principles in chemotherapy of Cancer. 3. Classify anticancer drugs. 4. Describe the mechanism of action, uses, adverse effects of Anticancer drugs and strategies to minimize toxicities. 5. Various antineoplastic regimens like MOPP, CHOP, ABVD etc	K	KH	Y	Lecture	Written / Viva voce		
49	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators	At the end of the session the student must be able to 1. Define immunosuppressants & classify immuno-suppressants. 2. Describe the mechanism of action of different classes of	K	KH	Y	Lecture	Written / Viva voce		

	and management of organ transplant rejection	immunosuppressants. 3. Enlist Biological agents used as immunosuppressants 4. Enumerate the clinical uses and adverse effects of immunosuppressants							
50	Describe management of common poisoning, insecticides, common stings and bites	At the end of the session the student must be able to 1. Explain the general management of poisoning and enlist the specific antidotes used in treatment of common poisons 2. Explain the method of enhancing elimination of toxin using examples 3. Explain the management of Bee sting, Scorpion bite and Snake bite.	K	KH	Y	Lecture	Written / Viva voce	General Medicine	
51	Describe heavy metal	At the end of the session the student	K	KH	N	Lecture/	Written /		

	poisoning and chelating agents	must be able to 1. Define Chelating agents and enlist Chelating agents used in Heavy metal poisoning 2. Name the Chelating agents used in the management of Iron, Lead, Copper, and Arsenic intoxication				SGD	Viva voce		
52	Describe vaccines and their uses	At the end of the session the student must be able to 1. Define „vaccine“ and classify vaccines 2. Enlist bacterial and viral vaccines 3. Enlist Toxoids and Mixed Toxoids 4. Enlist antisera and immunoglobulins 5. Discuss the routine immunization schedule for infants and children and adults including COVID 19	K	KH	Y	Lecture/SDL	Written / Viva voce		
53	Describe basic aspects of Geriatric and Pediatric	At the end of this theory session student should be able to 1. Describe physiological changes in	K	KH	Y	Lecture	Written / Viva voce	Pediatric s	

	pharmacology.	Children and Elderly patients that influence the pharmacokinetics and Pharmacodynamics. 2. Discuss the common drugs to which children/elderly are likely to respond differently. 3. Explain the principles that underlie the prescribing in pediatric and geriatric population!							
54	Describe drugs used in skin disorders	At the end of this session student should be able to 1. Define demulcents, emollients, adsorbents& protectants, astringents, irritants & counter irritants and keratolytics, Melanising agents with examples, their uses and adverse reactions. 2. Describe the mechanism of action, therapeutic uses, and toxicities of topical and systemic drugs used to treat common dermatological	K	KH	Y	Lecture	Written / Viva voce	Dermatology, Venereology & Leprosy	

		disorders like seborrheic dermatitis, Vitiligo, Psoriasis and Acne vulgaris. 3. List the topical glucocorticoids, explain the rationale for use of glucocorticoids in skin disorders and their adverse effects.							
55	Describe drugs used in Ocular disorders	At the end of this session student should be able to 1. Explain the mechanisms of action, clinical uses, and toxicities of ophthalmic drugs. 2. Describe how ophthalmic drugs administered topically can cause systemic side effects. 3. Understand the pathophysiology of glaucoma and the role of pharmacotherapy in its management.	K	KH	Y	Lecture	Written / Viva voce	Ophthalmology	
56	Describe and discuss the following: Essential medicines, Fixed dose	At the end of this session student should be able to 1. Discuss Essential medicines concept, NLEM	K	KH	Y	Lecture/ SGD	Written / Viva voce		

	combinations, Over the counter drugs, Herbal medicines	2. Discuss the criteria to prepare list of essential medicines for your community PHC. 3. Define fixed dose combination, advantages and disadvantages of FDC. 4. Describe the pharmacokinetic and pharmacodynamics parameters to be considered to combine drugs in an FDC. 5. Define Over The Counter medicines and prescription medicines. 6. Summarize how to responsibly use OTC medicines and prevent misuse. 7. Enumerate advantages and disadvantages of Herbal medicines.							
57	Describe and discuss pharmacogenetics, Pharmacogenomics and Pharmacoeconomics	At the end of this session student should be able to 1. Define Pharmacogenomics, Pharmacogenetics with examples 2. Discuss the role of	K	KH	N	Lecture	Written / Viva voce		

		Pharmacogenomics and Pharmacoeconomics in modern therapeutics.							
58	Describe and discuss dietary supplements and nutraceuticals	At the end of this session student should be able to 1. Analyse the importance of vitamin supplements in a) women in childbearing age b) Pregnancy and lactation c) AIDS or other debilitating conditions d) drug addiction e) recovering from surgery, burns and injury etc.	K	KH	n	Lecture	Written / Viva voce		
59	Discuss antiseptics and disinfectants	At the end of this session student should be able to 1. Differentiate antiseptics and disinfectants examples	K	KH	Y	Lecture	Written / Viva voce		

60	Discuss Drug Regulations, acts and other legal aspects	At the end of this session student should be able to 1. Identify the DRA in India and other countries 2. Describe the approval process for New Drugs. 3. Enumerate different drug schedules and acts	K	KH	Y	Lecture	Written / Viva voce		
61	Describe overview of drug development, Phases of clinical trials and Good Clinical Practice	At the end of this session student should be able to 1. Enlist the stages in new drug development 2. Explain the approaches to drug discovery and discuss about the preclinical studies 3. Describe the phases of clinical trials and the Principles Good Clinical Practice	K	KH	Y	Lecture-	Written / Viva voce		

COMPETENCIES IN “SKILLS” DOMAIN

Topic	Description
Clinical Pharmacy	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)
	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.
	Demonstrate the correct method of calculation of drug dosage in patients including those used in special populations
Clinical Pharmacology	Administer drugs through various routes in a simulated environment using mannequins
	Write a rational, correct, and legible generic prescription for a given condition and communicate the same to the patient
	Perform and interpret a critical appraisal (audit) of given prescription
	Perform a critical evaluation of the drug promotional literature
	To recognise and report an adverse drug reaction
	To prepare and explain a list of P-drugs for a given case/condition
	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs
	Prepare a list of essential medicines for a healthcare facility
	Communicate effectively with a patient on the proper use of prescribed medication
Experimental	Demonstrate the effects of drugs on rabbit eye, dog blood pressure (vasopressor and vaso-depressors with

Pharmacology	appropriate blockers), ciliary movements of frog's esophagus using CAL Interpretation of charts
Communication	Communicate with the patient with empathy and ethics on all aspects of drug use
	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines
	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider
	Explain to the patient the relationship between cost of treatment and patient compliance
	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management
	Demonstrate the ability to educate patients about various aspects of drug use including drug dependence and OTC drugs
	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs

COMPETENCIES AND SPECIFIC LEARNING OBJECTIVES IN SKILLS AND COMMUNICATION

No	COMPETENCY The student should be able to	Specific Learning Objectives SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Vertical Integration	Horizontal Integration
1.	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)	At the end of the session, the student should be able to Identify various dosage forms – solid, liquid, topical, parenteral Describe the various types of dosage form in the given samples with merits and demerits of each Describe all the components of commercial labels of the given dosage form and its importance	S/C	SH	Y	DOAP sessions	Skills assessments		

2.	Prepare oral rehydration solution from ORS packet and explain its use	The student should be able to: 1. Enumerate causes of dehydration 2. Explain the clinical assessment of dehydration 3. Enumerate the different types of ORS along with their composition with actions of each ingredient with special reference to reduced osmolarity ORS (new WHO ORS) 4. Choose the appropriate type of ORS for a given condition/patient 5. Calculate the quantity of ORS required to correct dehydration 6. Enumerate non-diarrheal uses of ORS	S/C	SH	Y	DOAP sessions	Skills assessment		
3.	Demonstrate the appropriate	In a simulated environment, the	S	SH	Y	DOAP sessions	Skills assessment		

	setting up of an intravenous drip in a simulated environment	student should be able to 1. Open the infusion set following aseptic technique 2. Appropriately position the patient and select a vein. 3. Prepare the overlying skin with aseptic care. 4. Demonstrate correct IV injection technique and strap the cannula in place. 5. Identify any visible impurities if present in the IV fluids. 6. Adjust the flow rate according to the requirement 7. Routinely check patient's ID, drug name, date of expiry etc before injecting. 8. Monitor a patient on an IV drip and identify any reactions to its contents or							

		contaminants							
		Checklist to be used for assessment							
4.	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	At the end of this practical session student should be able to: 1. Calculate appropriate doses for individual patients based on age, body weight, and surface area 2. Demonstrate the correct method of calculation of drug dosage in paediatric patients 3. Demonstrate the iv-drip rate calculation & infusion time 4. Demonstrate the correct method of calculation of drug dosage in patient suffering from renal disease 5. Demonstrate the correct method of calculation of drug dosage in patients with	S	SH	Y	DOAP sessions	Skills assessment		

		hepatic impairment							
5.	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient effectively	At the end of the session, student should be able to 1. Establish therapeutic goal/s, b diagnosis following standard t guidelines (STG) 2. Choose the appropriate drug/s clinical condition 3. Choose the appropriate dose, and duration of therapy for the 4. Write a legible prescription 5. Provide appropriate informati regarding the prescription	S/C	P	Y	Skill station	Skill station	Gene ral Medi cine, pedia trics	
6.	Perform and interpret a critical appraisal (audit) of a given prescription	At the end of the session, student should be able to 1. Demonstrate the understanding of importance of completeness of	S	P	Y	Skill lab	Maintenanc e of record book		

		prescription 2. Demonstrate the understanding of clinical diagnosis for which drugs are prescribed 3. Identify and comment on any discrepancies in the completeness and legibility of the prescription 4. Identify and comment on any discrepancies in the selection of drug, drug form, dose, frequency, duration of the treatment, instructions according to STG 5. Re-Write the prescription correcting all the discrepancies identified							
7.	Perform a critical appraisal/ evaluation of the drug promotional	At the end of this session student should be able to: 1. Discuss the various types of	S	P	Y	Skill lab Brainstorming followed by	Maintenance of record book/ Skill station	General Medi	

	Literature	sources of drug information 2. Demonstrate understanding of importance of critical evaluation of drug promotional literature 3. Critically evaluate the given drug promotional literature based on WHO criteria ▫ Appropriateness of illustration ▫ Relevance of references cited ▫ Content of scientific information				demonstration		cine	
8.	To recognise and report an adverse drug reaction	At the end of the session the student should be able to 1. Recognise an adverse drug reaction (ADR) in the given case 2. Perform causality assessment of the identified ADR using WHO & Naranjo's Scale	S	SH	Y	Skill station	Maintenance of record book/ Skill station		

		3. Fill the ADR reporting form (CDSCO form) 4. Explain the management of the ADR 5. Explain the methods to prevent the occurrence of the ADR 6. Report the ADR to the pharmacovigilance centre 7. Describe the Importance of reporting ADRs							
9.	To prepare and explain a list of P- drugs for a given case/condition	At the end of the session the student should be able to 1. Define the diagnosis 2. Specify the therapeutic objective 3. Make an inventory of effective groups of drugs 4. Choose an effective group of drugs according to efficacy, safety and suitability criteria 5. Choose the P-Drug for the given clinical condition	S	SH	N	Skill station	Maintenance of record book	General Medicine	
10.	Demonstrate	At the end of the session the student	S	SH	N	Skill station	Maintenance		

	how to optimize interaction with pharmaceutical representative to get authentic information on drugs	should be able to 1. Enumerate the key elements in the WHO guidelines on Ethical criteria for medicinal drug promotion. 2. Direct the discussion with pharmaceutical representative so as to get the information he needs about the drug effectively. 3. Collect a copy of data sheet of the product under discussion. 4. Compare the verbal statements with those in the official text during presentation effectively. 5. Perform a prior literature search and check quality of research methodology of the drug under discussion					e of record book		

		including cost comparison. 6. Decide effectively whether to include the drug in personal formulary with regard to efficacy, safety and cost-effectiveness of medicines							
11.	Prepare a list of essential medicine for a health care facility	At the end of the session the student should be able to 1. Understand the concept of Essential Medicines List for the nation/state/ health care facility 2. Identify the factors that determine the choice of drugs in an Essential Medicines List. 3. Prepare a list of essential medicines for a healthcare facility, with justification in a given scenario	S	SH	Y	Skill station	Maintenance of record book		
12.	Communicate effectively with a patient on proper use of prescribe	At the end of the session the student should be able to 1. Communicate about the effects of the prescribed drug with regards to the	C/A	SH	Y	Skill lab	Skill station		

	medication NSAIDs, Insulins, oral antidiabetics, Proton pump inhibitors bisphosphonates, Thyroxine, Tetracyclines statins, ferroussulphate tablets	following: - Why the drug is needed - Which symptoms will disappear, and which will not - When the effect is expected to start - What will happen if the drug is taken incorrectly or not at all 2. Communicate about the adverse effects of the prescribed drug with regards to the following: - Which side effects may occur - How to recognize them - How long they will continue - How serious they are - What action to be taken 3. Communicate about the instructions of drug use as following: - How the drug should be taken - When it should be taken - How long the treatment							

		should continue							

		d. How the drug should be stored e. What to do with left-over drugs 4. Communicate about the warnings of the prescribed drug with regards to the following: a. When the drug should not be taken b. What is the maximum dose c. Why the full treatment course should be taken 5. Communicate about the future consultations with regards to the following: a. When to come back (or not) b. In what circumstances to come earlier c. What information the doctor will need at the next appointment							

		6. Conclude the consultation by asking the following questions: - Ask the patient whether everything is understood - Ask the patient to repeat the most important information - Ask whether the patient has any more questions							
13.	Administer drugs through various routes in a simulated environment using mannequins	At the end of the session the student should be able to USE CHECKLIST FOR ASSESSMENT (refer WHO prescribing book) Enteral Specific Learning Objectives - Oral route - Identify the different dosage forms administered through the Oral route and	S	SH	Y	DOAP sessions	Skills assessment		

		instructions given to the patient for administering it. 2. Present the merits and demerits of Oral route of drug administration. 3. Demonstrate the administration of the drugs through oral route. 4. Identify the different equipment required for Nasogastric tube (NGT) insertion 5. Demonstrate the Nasogastric tube insertion and present the purpose. 6. Demonstrate the positioning of the patient during NGT insertion. 7. Demonstrate the preparation of the feeds for NG feeding.							

		II. Sublingual/ Buccal 1. Demonstrate the administration of the drugs through Sublingual and Buccal route. 2. Present the instructions for administering the same and how to terminate the action of the drug. 3. Present the different examples with dosage forms for the same. III. Transrectal 1. Identify the devices used to administer dosage forms through transrectal route. 2. Present the instructions to the patient before							

		administering dosage forms through transcutaneous route. 3. Demonstrate the administration of suppositories by rectal route. 4. Demonstrate the administration of enema (Evacuant/ Retention) by rectal route. IV. Transvaginal 1. Identify the devices used to administer dosage forms through transvaginal route. 2. Present the instructions to the patient before administering dosage forms through transvaginal route.								

		3. Demonstrate the administration of pessary, creams and foams by vaginal route. 4. Demonstrate the administration of douche by vaginal route. 5. Identify different types of Intrauterine contraception 6. Present the instructions/counseling to the patients on intrauterine contraception. 7. Demonstrate the placement of intrauterine contraception using the stimulation setting PARENTERAL Specific learning Objective for parenteral injections on							

		mannequins I. Intra Muscular injection 1. Identify the devices required for IM injection 2. Demonstrate the prerequisite preparations for injection along with aseptic precautions. 3. Present instructions to the patient about the injection procedure. 4. Identify the sites of IM injection on mannequin and present merits and demerits of each site. 5. Demonstrate the proper technique for IM injection. II. Intravenous injection 1. Identify the devices required for IV injection							

		2. Demonstrate the prerequisite preparations for injection along with aseptic precautions 3. Present instructions to the patient about the injection procedure. 4. Identify the sites of IV injection on mannequin 5. Demonstrate the proper technique for IV injection. III. Subcutaneous injection 1. Identify the devices required for SC injection. 2. Demonstrate the prerequisite preparations for injection along with aseptic precautions. 3. Present instructions to the patient about the injection							

		procedure. - Identify the sites of SC injection on mannequin. - Demonstrate the proper technique for SC injection. IV. Intradermal injection - Identify the devices required for Intradermal injection. - Demonstrate the prerequisite preparations for injection along with aseptic precautions. - Present instructions to the patient about the injection procedure. - Demonstrate the proper technique for Intradermal injection.							

		Local / Topical application Specific Learning Objectives. I. Transcutaneous – Jet Injection, Transdermal delivery system 1. Identify the devices used to administer dosage forms through transcutaneous route. 2. Explain the instructions to the patient before administering dosage forms through transcutaneous route. 3. Demonstrate the administration of Transdermal patches. II. Transmucosal/ Inhalational 1. Document the inhalational devices used							

		to administer inhalational dosage forms. 2. Present the merits and demerits of inhalational devices over one another 3. Explain the instructions to the patient before using inhalational devices. 4. Demonstrate the administration of inhalational dosage forms. 5. Identify the different types of airway masks and intubation tubes. Present a method for selection of intubation tubes. 6. Demonstrate the administration of anesthetic/ therapeutic gases through airway							

		masks and intubation tubes. III. Transnasal 1. Identify dosage forms administered transnasally. 2. Identify the devices used for administering dosage forms transnasally. 3. Present the merits and demerits of Transnasal route of drug administration. 4. Explain the instructions to the patient before administering dosage forms by trans nasal route. IV. Administration of drugs in to eye and ear							

		1. Identify dosage forms administered by ophthalmic/ ear route. 2. Explain the instructions to the patient before administering dosage forms by ophthalmic/ ear route.							
14.	Demonstrate the effects of drugs on blood pressure (vasopressor and vasodepressors with appropriate blockers) using computer aided learning	At the end of the session the student should be able to 1. Choose the appropriate animal experiment to study the effects of drugs on blood pressure 2. Explain the differences in actions of different vasopressor (adrenaline, noradrenaline) 3. Explain the differences in actions of different	S	SH	Y	Skill lab	Skill station		

		vasodepressors (ACh, alpha-blockers, histamine) 4. Analyse and interpret the graph obtained accurately on application of various drugs 5. Enumerate the therapeutic uses of vasopressors and vasodepressors							
15	Communicate with the patient with empathy and ethics on all aspects of drug use	At the end of the session the student should be able to: 1. Describe what information should be given to patients to allow them to make informed decisions 2. Communicate treatment plan and instructions to patient, at a suitable level of information 3. Engage in shared decision making where appropriate	A/C	SH	Y	Small group discussion	Skill station	General Medicine	
16	Communicate	At the end of this session, the student	A/C	SH	Y	Small group			

	with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	should be able to a) <u>Drug Therapy</u> 1. Communicate about the effects of the prescribed drug with regards to the following: e. Why the drug is needed f. Which symptoms will disappear, and which will not g. When the effect is expected to start h. What will happen if the drug is taken incorrectly or not at all 2. Communicate about the adverse effects of the prescribed drug with regards to the following: f. Which side effects may occur g. How to recognize them h. How long they will continue i. How serious they are				discussion	Skill station		

		j. What action to take 3. Communicate about the instructions of drug use as following: f. How the drug should be taken g. When it should be taken h. How long the treatment should continue i. How the drug should be stored j. What to do with left-over drugs 4. Communicate about the warnings of the prescribed drug with regards to the following: d. When the drug should not be taken e. What is the maximum dose f. Why the full treatment course should be taken 5. Communicate about the future consultations with regards to the following:							

		d. When to come back (or not) e. In what circumstances to come earlier f. What information the doctor will need at the next appointment 6. Conclude the consultation by asking the following questions: d. Ask the patient whether everything is understood e. Ask the patient to repeat the most important information Ask whether the patient has any more questions <u>b) Devices</u> The student should be able to communicate i) Step wise points or instructions on use of device ii) Communicate list of do's							

		and don'ts on the device iii) Demonstrate the proper use of device and ask the patient to show the same. iv) Methods on handling, cleaning and storage of device v) Dangers of use of device on other persons, without the prescription of doctor vi) Importance of keeping the device away from reach of the children vii) Contact number of manufacturer to be communicated on trouble shooting <u>c) Storage of Medicines:</u>The student should be able to communicate to patients on							

		i) Ideal storage condition of a pharmaceutical product as per product label ii) Effect of storage condition on potency and efficacy of the drug iii) ill effects of improper storage condition on human consumption iv) Importance of expiry date of the drug v) Factors to be taken in to consideration for drug storage like sanitation, temperature, light, moisture, ventilation and segregation. vi) Importance of storage of medicines away from reach of the children vii) Disposal of expired drugs							

17	Motivate patients with chronic diseases to adhere to the prescribed management by health care provider	At the end of the session the student should be able to: 1. Explain the term medication adherence 2. Explain the consequences of non-adherence in chronic diseases 3. Explain the methods to measure the medication adherence 4. Elicit the barriers affecting medication adherence 5. Explains the measures to be taken to motivate the patient to adhere to medications in chronic diseases	A/C	SH	Y	Small group discussion/ role play	Skill station/ short note		
18	Explain to the patient the relationship between cost of	At the end of this session, the student should be able to: 1. Assess the cost of the treatment 2. Enumerate various factors	A/C	SH	Y	Small group discussion/ Flip class/SDL	Short note/ Viva voce	General Medicine	

	treatment and patient compliance	influencing patient compliance (patient related, disease condition related, therapy related and health system related factors). 3. Communicate clearly to the patient about relationship between cost of treatment and non-compliance							
19	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	At the end of the session the student should be able to 1. Describe the term drug dependence 2. Enumerate the drugs that produce dependence 3. Describe the Legality involved in prescribing drugs likely to produce dependence (Drugs and Cosmetics Act, 1940; Pharmacy Act, 1948; Narcotic Drugs and Psychotropic substances Act, 1985) 4. Describe the clinical including psychosocial assessment of the	K	KH	Y	Small group discussion	Short note/ Viva voce	Psychiatry	

		patient before prescribing 5. Describe the importance of documentation of prescribing process 6. Describe the importance of periodic review of prescriptions 7. Describe the basic treatment regimens for various addictions and withdrawal states along with psycho-social rehabilitation							
20	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	At the end of this session, the student should be able to educate the patients and public regarding: 1. The importance of complying with the doctor's instructions 2. The demerits of self-prescription 3. The importance of identifying and reporting ADRs to concerned authorities 4. Caution be taken while using drugs causing dependence 5. Safe use of OTC	A/C	SH	Y	Small group discussion/ Role play	Skill station	Psychiatry	

TOPICS FOR INTEGRATION

	COMPETENCY	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Vertical Integration	Horizontal Integration
S No.	The student should be able to							
1.	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce	Anesthesiology, Physiology	
2.	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, local anesthetics and pre- anesthetic medications	K	KH	Y	Lecture	Written/ Viva voce	Anesthesiology	
3.	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of anti-psychotic, anti-depressant drugs	K	KH	Y	Lecture	Written/ Viva voce	Psychiatry	
4.	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce	Psychiatry	Forensic Medicine

5.	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture	Written/ Viva voce	General Medicine	
6.	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce	Biochemistry, General Medicine	
7.	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce	Respiratory Medicine	Pathology
8.	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce	Obstetrics & Gynaecology	
9.	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce	General Medicine, Pediatrics	Microbiology
10.	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce	Respiratory Medicine	Microbiology

11.	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in STD including HIV	K	KH	Y	Lecture	Written/Viva voce	Dermatology, Venereology & Leprology	Microbiology
12.	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/Viva voce	General Medicine	
13.	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/Viva voce	Pediatrics, General medicine	
14.	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/Viva voce	Ophthalmology	
15.	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	skill station	General Medicine	

TOPICS TO BE COVERED (SEMESTERWISE)

3rd semester: 100 hrs. (40 Theory, 60 Practical)

Module No	Chapter
1	General Pharmacology
2	Autonomic nervous system including Skeletal Muscle Relaxants
3	Autacoids (Prostaglandins, Histamine and antihistamines, Vasoactive peptides, Serotonin & Treatment of migraine)
4	Cardiovascular system including Diuretics and antidiuretics, shock

4th semester: 100 hrs. (40 Theory, 60 Practical)

Module No	Chapter
5	Central Nervous System including Local Anesthetics, NSAIDS, Drugs used in the treatment of Gout and Rheumatoid Arthritis
6	Respiratory system
7	Gastrointestinal system
8	Blood (Drugs affecting coagulation, Anemias, Hematopoietic growth factors, Dyslipidemias)

5th semester: 100 hrs. (40 Theory, 60 Practical)

Module No	Chapter
9	Endocrines
10	Chemotherapy including Anti-cancer agents, immunomodulators
11	Drugs acting on uterus: oxytocic's and tocolytics
12	Antiseptics and disinfectants, Drugs to treat skin disorders
13	Drugs to treat ocular diseases
14	Vitamins, vaccines & sera
15	Heavy metal poisoning, Chelating agents
16	Occupational and environmental pollutants, food adulterants, Nutraceuticals

SYLLABUS AND PAPER WISE TOPIC DISTRIBUTION

Paper I

S No	Chapter/ Topic	Approximate Weightage of marks	Type of Questions
1	General Pharmacology	20%	LAQ, SAQ, MCQ
2	Autonomic nervous system including Skeletal Muscle Relaxants	20%	LAQ, SAQ, MCQ
3	Autacoids (Prostaglandins, Histamine and antihistamines, Vasoactive peptides, Serotonin & Treatment of migraine)	10%	SAQ, MCQ
4	Central Nervous System including Local Anesthetics, NSAIDS, Drugs used in the treatment of Gout and Rheumatoid Arthritis	25%	LAQ, SAQ, MCQ
5	Cardiovascular system including Diuretics and antidiuretics, shock	25%	LAQ, SAQ, MCQ
	Total	100%	

Paper II

S No	Chapter/ Topic	Weightage of marks	Type of Questions
1	Endocrines	20%	LAQ, SAQ, MCQ
2	Gastrointestinal system	10%	LAQ, SAQ, MCQ
3	Respiratory system	10%	LAQ, SAQ, MCQ
4	Blood (Drugs affecting coagulation, Anemias, Hematopoietic growth factors, Dyslipidemias)	15%	LAQ, SAQ, MCQ
5	Chemotherapy including Anti-cancer agents, immunomodulators	35%	LAQ, SAQ, MCQ
6	Drugs acting on uterus: oxytocic's and tocolytics	5%	SAQ, MCQ
7	Antiseptics and disinfectants, Drugs to treat skin		SAQ, MCQ

	disorders		
8	Drugs to treat ocular diseases		SAQ, MCQ
9	Vitamins, vaccines & sera	5%	SAQ, MCQ
10	Heavy metal poisoning, Chelating agents		SAQ, MCQ
11	Occupational and environmental pollutants, food adulterants, nutraceuticals		SAQ, MCQ
	Total	100%	

LAQ: Long Answer Question/ Essay,

SAQ: Short Answer Question

MCQ: Multiple Choice Question

THEORY EXAMINATION: PAPER PATTERN & MARKS DISTRIBUTION

Question paper pattern: Each theory paper of 100 marks consists of the following pattern.

Theory	Pattern	Marks	Total marks 100+100 = 200
Paper I 100 marks	Section A (Multiple Choice Questions)	20 x 1 mark	20 marks
	Section B - One (1) Long Answer Question (Structured Essay/ clinical case) - Six (6) Short Answer Questions	1 x 10 = 10marks 6 x 5 = 30 marks	40 marks
	Section C - One (1) Long Answer Question (Structured Essay/ clinical case) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
Paper II 100 marks	Section A (Multiple Choice Questions)	20 x 1 mark	20 marks
	Section B (Subjective Question) - One (1) Long Answer Question (Structured Essay/ clinical case) - Six (6) Short Answer Questions	1 x 10 = 10marks 6 x 5 = 30 marks	40 marks
	Section C (Subjective Question) - One (1) Long Answer Question (Structured Essay/ clinical case) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks

Note: For midterm and end of term (Internal) exams one paper of 100 marks will be conducted, while for Prefinal and Final professional exams, there will be two papers (Paper I&II) of 100 marks each.

PRACTICAL EXAMINATION: PATTERN & MARKS DISTRIBUTION

Maximum marks: 100

Category of Exercise		Marks
I. Spotters		
Photographs of scientists, ADRs, Sources of drugs, Instruments/Devices/ Drug delivery systems, Chemical structure of drugs, Dosage forms, Disease conditions etc.		10 X 1 = 10 marks
II. Clinical Pharmacology Exercises		
1	Dosage calculation	1 X 5 = 5 marks
2	Pharmacodynamic chart OR Rationality of FDC	1 X 5 = 5 marks
3	Pharmacokinetic chart OR Experimental Pharmacology chart	1 X 5 = 5 marks
4	Prescription writing exercise	1 X 5 = 5 marks
5	Criticize Correct Rewrite Prescription	1 X 5 = 5 marks
6	ADR reporting-Pharmacovigilance OR Critical appraisal of Drug Promotional Literature	1 X 5 = 5 marks
7	Clinical Problem-Solving Exercises	2 X 5 = 10 marks
III. Skill station OSPE, Computer Assisted Learning & AETCOM exercises		
Demonstration of given route of drug administration on mannequins + Select a suitable route of drug administration and justify its selection for the given clinical case scenario OR Computer Assisted Learning / Simulation exercise (Experimental Pharmacology) + AETCOM exercise (Communication skill)		15 + 5 = 20 marks
IV. Record book		10 marks
V. Viva Voce		20 marks
Grand total		100 marks

All India Institute of Medical Sciences, Madurai
II MBBS Professional Examination
Pharmacology Paper I

Duration 3 hours (including 20 min for MCQs)

Section A: Multiple Choice Questions (20 X 1 = 20 marks)

Choose only one best answer for all the following MCQs

Type of questions: Analytical, calculations, Matching type, Assertion & Reason, True/False.

1. Calculate the loading dose of aminophylline required for a 70 kg adult suffering from severe acute asthma.

The target plasma concentration is 15 mg/L and the V_d is 0.5 L/kg.

- A. 525 mg
- B. 35 mg
- C. 7.5 mg
- D. 1050 mg

Ans: A

Reference: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 48.

2. Identify Class IA anti-arrhythmic from the following.

- A. Lignocaine
- B. Procainamide
- C. Verapamil
- D. Atenolol

Ans: B

Reference: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 588.

3. Calcium reabsorption in the distal tubule is increased by:

- A. Furosemide
- B. Acetazolamide
- C. Mannitol
- D. Hydrochlorothiazide

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 644.

4. Truncal rigidity can be a side effect of which intravenous anesthetic?

- A. Fentanyl
- B. Midazolam
- C. Thiopentone
- D. Propofol

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 438.

5. Drug used in the treatment of status epilepticus from the following.

- A. Ethosuximide
- B. Gabapentin
- C. Lorazepam
- D. Pregabalin

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 469.

6. Which ONE of the following drugs mediate the pharmacological responses via transmembrane enzyme linked receptors?

- A. Norepinephrine
- B. Insulin
- C. Cortisol
- D. Acetylcholine

Ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 63.

7. Identify the drug used for treatment of all the following clinical conditions namely Hypertension, Classical angina, Chronic Heart Failure and Arrhythmias.

- A. Metoprolol
- B. Sodium nitroprusside
- C. Verapamil
- D. Glyceryl trinitrate

Ans: A

Ref: Katzung's Basic & Clinical Pharmacology, 16th Edition Ed. Todd W. Vanderah. McGraw-Hill, 2024. Page 232

8. Vasodilator action of nitrates is potentiated by

- A. Propranolol

- B. Phenylephrine
- C. Noradrenaline
- D. Sildenafil

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 603.

9. Toxic dose of atropine is expected to cause all except

- A. Bronchospasm
- B. Hyperthermia
- C. Urinary retention
- D. Blurred vision

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 150.

10. Find the correct match of drug used in heart failure and its mechanism of action

- A. Levosimendan - Calcium sensitizer
- B. Inamrinone - Blocks $\text{Na}^+ \text{K}^+$ ATPase
- C. Spironolactone - Blocks renal epithelial sodium channels
- D. Triamterene - Blocks mineralocorticoid receptor

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 584.

11. Diuretic that decreases free water clearance in Diabetes insipidus:

- A. Acetazolamide
- B. Spironolactone
- C. Hydrochlorothiazide
- D. Mannitol

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 645.

12. Assertion and reasoning:

Assertion: Angiotensin Receptor Blockers are not associated with dry cough.

Reason: They do not inhibit the metabolism of bradykinin.

- A. Both Assertion and Reason are True and Reason is the correct explanation for Assertion
- B. Both Assertion and Reason are false
- C. Both Assertion and Reason are True, but Reason is not the correct explanation for Assertion
- D. Assertion is true. Reason is false

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 567.

13. Match of the following regarding the drug therapy:

a. A woman experiences pain abdomen due to intestinal colic	1. Alfuzosin
b. A man complains of urinary urgency due to BPH	2. Carvedilol
c. Drug for HTN that reduces both CO and PR	3. Phenoxybenzamine
d. Drug that is used for lowering BP before surgery for Pheochromocytoma	4. Dicyclomine

- A. a4, b1, c2, d3
- B. a4, b3, c1, d2
- C. a2, b3, c4, d1
- D. a1, b2, c3, d4

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025.

14. The prostaglandin analogue used in glaucoma.

- A. Bimatoprost
- B. Epoprostenol
- C. Misoprostol
- D. Alprostadil

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page: 185

15. The plasma concentration of a drug showing zero order kinetics decreases from 10 mg/L to 5 mg/L in one hour. How long it will take for the same drug to get reduced from 20mg/L to 10mg/L.

- A. 4 hours
- B. 1 hour
- C. 2 hours
- D. 3 hours

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page: 45

16. A chronic alcoholic is brought to emergency room with irritability, vomiting, abdominal pain, irregular respiration and diminution of vision. There is a history of spurious alcohol consumption 6 hours prior. All the following are used for treating the above condition except

- A. Fomepizole
- B. Folinic acid
- C. Disulfiram
- D. Sodium bicarbonate

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page: 540

17. The drug that decreases heart rate without decreasing contractility or AV nodal conduction:

- A. Atenolol
- B. Verapamil
- C. Nifedipine
- D. Ivabradine

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page: 583

18. Example for Phase II biotransformation reaction from the following

- A. Oxidation
- B. Reduction
- C. Hydrolysis
- D. Acetylation

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page: 35-42

19. Phase II regulatory clinical trials are also known as:

- A. Therapeutic exploratory trials
- B. Therapeutic confirmatory trials
- C. Micro-dosing studies
- D. Post-marketing surveillance studies

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025.
Page: 104

20. Celecoxib is a selective COX-2 inhibitor. It increases cardiovascular risk by inhibiting PGI₂ formation.

- A. Both statements are FALSE
- B. First statement is TRUE but second one is FALSE
- C. First statement is FALSE but second one is TRUE
- D. Both statements are TRUE

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025.
Page: 238

All India Institute of Medical Sciences Madurai, Tamil Nadu
MODEL QUESTION PAPER

Pharmacology Paper - I

(General Pharmacology, ANS including Skeletal Muscle Relaxants, Autacoids, CVS including Shock, Diuretics and Antidiuretics, CNS including Local Anesthetics, NSAIDs, Drugs for Rheumatoid Arthritis and Gout)

Duration: 3 hours including MCQs

Max. Marks: 100

- **Answer all questions.**
- **Illustrate answers with suitable diagrams wherever necessary.**

Section B (40 marks)

Long Answer Question:

1 X 10 = 10 marks

1. A 40-year-old farmer is brought to casualty with restlessness, vomiting, abdominal pain, diarrhea, urinary incontinence, difficulty in breathing, increased salivation, and lacrimation. On examination BP-90/60mmHg, PR-58bpm, bilateral wheeze present and pupils constricted to pinpoint. He was spraying pesticides in his field before the onset of symptoms. (1+3+4+2 = 10)

- a) What is the diagnosis?
- b) How do you treat the above clinical condition and explain the pharmacological basis of treatment?
- c) Classify Anti-muscarinic drugs.
- d) Explain the role of Nicotinic blockers in this case?

Short Answer Questions:

6 X 5 = 30 marks

2. Define drug Antagonism, Explain different types with examples (1+4)
3. Enumerate FOUR drugs used to treat acute attack of migraine and explain the mechanism of action of any two of them. (2+1.5+1.5)
4. Define first order and zero order elimination kinetics. Compare and contrast them (2+3)
5. Enumerate the drugs used in Pre-anesthetic medication and explain their pharmacological basis (2.5+2.5)
6. Describe the mechanism of action, and write the uses and adverse effects of loop diuretics (1.5+2+1.5)
7. Explain the mechanism of action of Succinylcholine. Name its adverse effects related to Pharmacogenetic mechanisms and outline the management of those adverse effects (2.5+2.5)

Section C (40 Marks)

Long Answer Question:

1 X 10= 10 marks

1. A 30-year-old man diagnosed with schizophrenia was prescribed an antipsychotic. After 1 week, he started suffering from tremors, rigidity, grimacing, and rolling of eyeballs. So, he reported to hospital for the needful. (1+2+2+2+3)

- What could be the type of antipsychotic prescribed?
- What was the underlying mechanism for the adverse effects?
- What would be the line of management?
- Mention the alternative (better) drugs for Schizophrenia that can largely avoid the above adverse effects. Explain their mechanism of action along with their advantages.

Short Answer Questions:

6 X 5 = 30 marks

2. Name two drugs used in the treatment of Paroxysmal Supraventricular Tachycardia (PSVT).

Write their mechanism of action and pharmacological basis of their use (1+2+2)

3. Enumerate second generation antihistamines. Mention their uses and advantages over the first- generation drugs (2+1.5+1.5)

4. Enlist the Disease Modifying Anti Rheumatic Drugs. Explain the mechanism of action of any TWO of them (3+2)

5. Explain the mechanism of action of lignocaine. Mention different types of local anesthesia with suitable drug examples and applied clinical conditions (1+ 2+2)

6. Enlist the drugs used in the management of anaphylactic shock. Explain the pharmacological basis for their use (2+3)

7. Name two organic nitrates. Describe their mechanism of action. Write two of their clinical uses and explain the mechanism of nitrate tolerance. (1+2+1+1)

All India Institute of Medical Sciences, Madurai
II MBBS Professional Examinations
Pharmacology Paper II

Duration 3 hours (including 20 min for MCQs)

Section A: Multiple Choice Questions (20 X 1 = 20 marks)

Choose only one best answer for all the following MCQs

Type of questions: Analytical, Matching type, Assertion & Reason, True/False.

1. A 50-year-old alcoholic with hepatic cirrhosis was admitted to hospital with the complaints of drowsiness and disorientation to time and place. Further assessment led to the diagnosis of hepatic encephalopathy. Which one of the following laxatives/purgatives can be used to eliminate the toxic enteric products in this individual?

- A. Phenolphthalein
- B. Lactulose
- C. Magnesium hydroxide
- D. Sodium picosulfate

Ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 743.

2. Monoclonal antibody against IgE used in the treatment of bronchial asthma is

- A. Rituximab
- B. Mepolizumab
- C. Omalizumab
- D. Natalizumab

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 271.

3. The most prominent and dose related side effect of salbutamol is

- A. Rise in blood pressure
- B. Skeletal muscle tremor
- C. Hyperglycemia
- D. CNS stimulation

Ans B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 261

4. Assertion: Aspirin has antiplatelet action only at low doses

Reason: Aspirin inhibits TXA₂ mediated platelet aggregation at low doses and inhibits PGI₂ also at moderate to high doses.

- A. Both Assertion and Reason are wrong
- B. Both Assertion and Reason are correct, and Reason is the correct explanation for Assertion
- C. Assertion is correct and Reason is wrong
- D. Both Assertion and Reason are correct, but Reason is not the correct explanation for Assertion

Ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 229-230

5. A 43-year-old gentleman with a long history of type 2 diabetes (>6 years), dyslipidemia and hypertension presented to the emergency department with a 6-day history of weakness, fever, nausea, vomiting and a painful left foot with foul smelling pus discharge from ulcer on the sole. He was diagnosed to have Diabetic Keto Acidosis. The insulin preparation of choice in this condition is:

- A. Regular insulin
- B. Lente insulin
- C. Isophane insulin
- D. 30:70 mixture of plain and isophane insulin

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 312

6. A woman of reproductive age group is under OCP to prevent pregnancy. Concurrent use of which of the following drugs is likely to cause failure of oral contraception:

- A. Ketoconazole
- B. Rifampicin
- C. Cimetidine
- D. Ciprofloxacin

Ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 373-375

7. A 70-year-old patient is suffering from Benign Prostatic Hyperplasia. He is being treated with a drug that inhibits the conversion of Testosterone to Dihydrotestosterone. Identify the drug from the following

- A. Finasteride
- B. Letrozole
- C. Danazol
- D. Tamoxifen

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 352

8. The bactericidal action of aminoglycoside has characteristic feature of

- A. Time dependent killing
- B. Concentration dependent killing
- C. Post antibiotic effect.
- D. Both B and C

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 814-816

9. Mechanism of action of terbinafine is:

- A. Pore formation by binding to ergosterol synthesis
- B. Prevents formation of purine

- C. Inhibition of microtubule formation
- D. Inhibition of squalene epoxidase

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 875

10. Which one of the following drugs acts by inhibiting cell wall synthesis?

- A. Linezolid
- B. Ciprofloxacin
- C. Vancomycin
- D. Quinupristin – Dalfopristin

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 828

11. Use of one of the following antimalarial drug carries highest risk of hemolysis in subjects with G-6-PD deficiency

- A. Pyrimethamine
- B. Artemisinin
- C. Primaquine
- D. Mefloquine

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 918

12. The preferred route of administration of BCG vaccine for effective development of immunity against Tuberculosis

- A. Intramuscular
- B. Subcutaneous
- C. Intradermal
- D. Oral

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 1046

13. Identify the Quaternary ammonium antiseptic/disinfectant used to sterilise surgical instruments.

- A. Chlorhexidine
- B. Cresol
- C. Cetrimide
- D. Gentian violet

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 1003

14. Oxytocin is a uterine stimulant. Atosiban is a tocolytic.

- A. Both the statements are TRUE
- B. First statement is TRUE, but second one is FALSE
- C. First statement is FALSE, but second one is TRUE

D. Both statements are FALSE

Ans: A

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 381, 385

15. Scabies can be treated with which of the following drugs administered systemically?

- A. Psoralens
- B. Ivermectin
- C. Permethrin
- D. Albendazole

Ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 1006

16. The new formula WHO-ORS differs from the older standard formula WHO-ORS in which of the following aspects?

- A. It has higher K^+ concentration
- B. It has no basic salt
- C. It has higher Cl^- concentration
- D. It has lower Na^+ concentration

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 747

17. Match the following drug- treatment of disease correctly

a. Clofazimine	1. HIV/AIDS
b. Raltegravir	2. Leprosy
c. Bedaquiline	3. Visceral Leishmaniasis
d. Sodium stibogluconate	4. Tuberculosis

- A. a2, b3, c1, d4
- B. a2, b1, c4, d3
- C. a1, b2, c4, d3
- D. a3, b4, c2, d1

ans: B

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 851,896,839,937.

18. Identify the hematopoietic growth factor from the following:

- A. Iron
- B. Folic acid
- C. Vitamin B12
- D. Filgrastim

Ans: D

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 673

19. A 40-year-old woman with documented penicillin allergy is treated with a β lactam antibiotic that rarely cross reacts with penicillins. Her infection is most likely caused by which of the following organisms?

- A. *S. aureus*
- B. *S. pneumoniae*
- C. *P. aeruginosa*
- D. *E. fecalis*

Ans: C

Ref: Tripathi KD. Essentials of medical pharmacology. 9th ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2025. Page 802

20. The drug used for the treatment of clostridium difficile enterocolitis

- A. Clindamycin
- B. Ceftriaxone
- C. Ampicillin
- D. Fidaxomicin

Ans: D

Ref: Katzung's Basic & Clinical Pharmacology, 16th Edition Ed. Todd W. Vanderah. McGraw-Hill, 2024. Page 849.

**All India Institute of Medical Sciences Madurai,
Tamil Nadu**

MODEL QUESTION PAPER

Pharmacology Paper - II

(Endocrines, GIT, Respiratory system, Blood, Chemotherapy including Anti-cancer agents, Immunomodulators, Drugs acting on uterus, Drugs used for skin disorders, Ocular disorders, Vaccines and sera, and Chelating agents)

Duration: 3 hours including MCQs

Max. Marks: 100

- **Answer all questions.**
- **Illustrate answers with suitable diagrams wherever necessary.**

Section B (40 marks)

Long Answer Question:

1 X 10 = 10 marks

1. A 55-year-old obese male patient came to medical OPD with chief complaints of excessive thirst, frequent urination, general weakness, and fatigue. Laboratory investigations revealed Fasting Blood Glucose: 180 mg/dl, Post-prandial Blood Glucose: 250mg/dl, HbA_{1c}: 7.8%
 - a) What is the diagnosis of the above clinical condition? (1 mark)
 - b) Classify the drugs used orally for the above clinical condition. (4 marks)
 - c) Describe the mechanism of action, uses and adverse effects of Metformin. (2 + 1 + 2 = 5 marks)

Short Answer Questions:

6 X 5 = 30 marks

2. Describe the mechanism of action of artemisinin derivatives. How to minimize the development of resistance with them? Mention three Artemisinin Combination Therapy (ACT) regimens (2+1.5+ 1.5)
3. Describe the mechanism of action of warfarin and mention its therapeutic uses. Add a note on the treatment of warfarin toxicity. (2+1.5+1.5)
4. Enlist four inhalational glucocorticoids used in bronchial asthma. What are the advantages of them over systemic glucocorticoids? Name the devices for administration of inhaled glucocorticoids. (2+1.5+1.5)
5. Name two thioamide group of drugs used in hyperthyroidism. Explain the mechanism of action of them. Name the preferred drug of them in the first trimester of pregnancy and give the justification. (1+2+2)
6. Enumerate FOUR third generation cephalosporins. Mention one example of the combination of a beta-lactamase inhibitor with third generation cephalosporin and explain the pharmacological basis. (2+1+2)
7. Explain the mechanism of action of Amphotericin B and write its clinical uses. Name three formulations of Amphotericin B (1.5+2+1.5)

Section C (40 Marks)

Long Answer Question:

1 X 10 = 10 marks

1. A 55-year-old male who is an alcoholic and chronic smoker came to medical OPD with complaints of epigastric pain, loss of appetite, nausea and abdominal bloating aggravated after taking spicy foods. Based on the above, a provisional diagnosis of Acid Peptic Disease was made.
 - a) Classify the drugs used for the treatment of above condition. (4 marks)
 - b) Describe the mechanism of action and uses of Pantoprazole. (2 + 2 marks)
 - c) Explain why pantoprazole class of drugs are more potent compared to H₂ blockers and antimuscarinics? (1 mark)
 - d) Write one triple drug regimen for Helicobacter pylori infection. (1 mark)

Short Answer Questions:

6 X 5 = 30 marks

2. Name two calcineurin inhibitors. Explain with the help of a diagram how they differ from each other regarding their mechanism of action? Mention two clinical uses of them (1+3+1)
3. Enumerate four Nucleoside Reverse Transcriptase Inhibitors. Explain the rationale of combining Ritonavir with Lopinavir (2+3)
4. Describe the mechanism of action of Isoniazid. Name two characteristic adverse effects. Mention the drug regimens with duration for a newly diagnosed case of drug sensitive pulmonary tuberculosis. (2+1+2)
5. Name two oral iron and two parenteral iron preparations. Write indications for parenteral iron therapy. Name two specific antidotes for iron over dosage. (2+2+1)
6. Enlist four HMG CoA reductase inhibitors and write two clinical conditions for which they are used. Explain the pharmacological basis of combining them with Ezetimibe. (2+1+2)
7. Name two expectorants. Explain step wise management of acute severe asthma. (1+4)

SCHEME OF PRACTICAL EVALUATION - PHARMACOLOGY

S. No	Spotter s (10 M)	Dosage calculati on (5 M)	Prescripti on writing (5 M)	Comment, Correct, rewrite the prescriptio n (5 M)	MOA chart/ Ratio nality of FDC (5 M)	General Pharmacology / Experimental Pharmacology chart (5 M)	ADR / DPL (5 M)	Skill station (CAL/ Manne quin) 20 M	Clinical Problem Solving (2 X 5 = 10 M)	Record (10 M)	Sub total (80 M)	Viva voce (20 M)				Grand total (100 M)
												I 5 M	II 5 M	III 5 M	IV 5 M	
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

RECOMMENDED BOOKS FOR PHARMACOLOGY

S.No.	Name	Authors	Publication
1.	Essentials of Medical Pharmacology	KD Tripathi	Jaypee
2.	Principles of Pharmacology	Sharma and Sharma	Paras
3.	Basic and clinical Pharmacology	Katzung	McGraw Hill
4.	Rang and Dale`s Pharmacology	Rang	Elsevier
5.	Lippincott`s illustrated reviews Pharmacology	Harvey	Lippincott Williams & Wilkins
6.	Pharmacological Classification of Drugs with Doses and preparation	Tripathi	Jaypee
7.	Principles of Pharmacology	David E.Golan	Lippincott Williams & Wilkins
8.	Practical Manual of Pharmacology	Dinesh Badyal	Jaypee
9.	Practical Manual of Experimental & Clinical Pharmacology	Medhi & Prakash	Jaypee
10.	Goodman & Gilman`s The Pharmacological Basis of Therapeutics	Brunton	McGraw Hill

COMMUNITY AND FAMILY MEDICINE

Goal

The broad goal of teaching in Community and Family Medicine is to prepare the student to function effectively as a community physician.

Objectives

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

1. Describe the history of Public Health and the important milestones
2. Discuss the concepts of community health
3. Describe the important/common health problems in India.
4. Identify various measures of levels of health through various indices.
5. Apply various epidemiological methods to analyse the burden of morbidities and health related events.
6. Apply appropriate epidemiological methods to prevailing disease conditions in the hospital and community situations.
7. Use epidemiological tools to make rational decisions relevant at the individual and community levels.
8. Identify the demographic pattern of the country and link its relation to health.
9. Review the various sources of health information system in the Indian context
10. Describe environmental hazards - inside the home, at the workplace and in the community.
11. Describe the importance of water and sanitation in human health.

12. Explain common occupational hazards in industries, agriculture, and its control including services available to industrial workers.
13. Plan, execute and present data from a hospital/community survey.
14. Derive and interpret basic summary and inferential statistical measures.
15. Trace the linkage between the individuals, family, community and socio-cultural milieu in health and disease.
16. Diagnose and manage maternal and child health problems
17. Advise/counsel couples and the community on the family planning methods available.
18. Diagnose and manage common nutritional problems at the individual and community levels.
19. Assess the nutritional status of individual from various age groups in the community.
20. Describe the health information system in India with reference to the Management Information System.
21. Analyse the challenges in mental health and recent development to improve mental health.
22. Associate the role of Genetics in Health and Disease with its recent development.
23. Discuss and appraise the important National Health Programmes.
24. Compare the health care delivery system in India with other developing and developed countries.
25. Describe the trend in health status of tribals in India
26. Describe the organization and functions of the health care team at Primary Health Centre, Community Health Centre and District levels.
27. Interact with other members of the health care team and participate in the organization of health care services and implementation of National health Programmes.
28. Define the role of international agencies in health

29. Plan measures for disaster management.
30. Describe the principles and components of primary Health Care, National Health Policy, Global Health targets including SDGs and its implementation in the country.
31. Diagnose and manage common health problems and emergencies at the individual, family and community levels in the context of existing health care resources, prevailing socio-cultural beliefs and family resources.
32. Interact and involve the community-based organisations to carry out a community-based intervention programme.
33. Appraise the quality of health education materials available for common public health problems
34. Organise a counselling/awareness rising in a community using appropriate audiovisual aids and mass communication channels.

Table 1: Distribution of Teaching hours in Community and Family Medicine

Semester	Theory hours	Practical hours	Clinical posting hours	FHAP* hours	ECE** hours	Elective postings
First	20	-	-	-	20	-
Second		-	-	-	-	-
Third	20	20	-	-	-	-
Fourth	40	20	90	-	-	-
Fifth	-	-		-	-	-
Sixth	20	30	-	10	-	-
Seventh	20	30	90	10	-	-
Eight	40	-		-	-	-
Ninth	20	20	-	-	-	1-2 weeks
Total	180	120	180	20	20	40 to 80 hrs

*FHAP – Family Health Advisory Program

**ECE – Early Community Exposure

Grand total = 520 hours + electives (40 to 80 hours)

Theory – 1 hour session, Practical – 2 hours, Clinical postings – 3 hours, FHAP – 2 hours, ECE – 5 hours (Saturdays 8.00 AM to 1.00 PM)

Early Community Exposure (ECE)

To facilitate students' interaction with the rural community, early community exposure is planned in the 1st semester. ECE will include visit to PHC, interaction with village leaders/stake holders, preparation of health education materials followed by health education session in the community.

Family Health Advisory Program (FHAP)

Students will have a longitudinal follow up of allotted families in the community so as to enable them to understand the interplay of demographic, environmental, socio-economic and cultural factors in the causation of disease. Students will be allotted families with children less than two

years of age or individuals with chronic non communicable diseases. The allotted families will be followed by the students through monthly visits during the 6th and 7th semesters.

Clinical posting

During the clinical postings, the students will learn the basics of research methodology including study designs, framing objectives, sampling, methods of data collection, data analysis by implementing a small research project at the community. Clinico-psycho-social case work ups will be done along with field visits in the community/PHC.

Table 2: Semester wise Teaching topics for Community and Family Medicine

Semester	Topics
First	Concept of Health and Disease
	Relationship of social and behavioural sciences to health and Disease
	Principles of Health Promotion and Education
	Nutrition – I
Third	Nutrition – II
	Demography and Family Planning
	Health Information System
	Epidemiology and study designs – I
Fourth	Epidemiology and study designs – II
	Basic statistics
	Environment and Health
	Epidemiology of Communicable diseases – I
Sixth	Epidemiology of Communicable diseases – II
	Epidemiology of Non-Communicable diseases
	Reproductive and Child Health – I
Seventh	Reproductive and Child Health – II
	Hospital Waste Management
	Occupational Health
	Disaster Management
Eighth	Geriatric services

	National Health Programmes
	Tribal health
	Genetics
	Mental Health
	Health care of the community
Ninth	Health planning and management
	International health
	Essential Medicines
	Recent advances in Community Medicine

Table 3: Topic wise Competencies, T-L and Assessment methods in Community and Family Medicine

COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Teaching learning method	Assessment method
Topic: Concept of Health and Disease				
Define and describe the concept of Public Health	K	KH	Lecture	Written / Viva voce
Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of	K	KH	Lecture	Written / Viva voce

disease				
Describe and discuss the natural history of disease	K	KH	Lecture	Written / Viva voce
Describe the application of interventions at various levels of prevention	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)	K	KH	Lecture, Small group discussion	Written / Viva voce
Enumerate and describe health indicators	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe the Demographic profile of India and discuss its impact on health	K	KH	Lecture, Small group discussion	Written / Viva voce
Demonstrate the role of effective Communication skills in health in a simulated environment	S	SH	DOAP sessions, Role Play	Skill Assessment
Demonstrate the important aspects of the doctor patient relationship in a simulated environment	S	SH	DOAP sessions, Role Play	Written /Skill Assessment
Topic: Relationship of social and behavioural sciences to health and disease				
Describe the steps and perform clinico socio-	S	SH	Lecture, Small group discussion,	Written / Viva voce/ Skill assessment

cultural and demographic assessment of the individual, family and community			CBL	
Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status	S	SH	Lecture, Small group discussion, Clinical postings	Written / Viva voce/ Skill assessment
Describe barriers to good health and health seeking behaviour	K	KH	Lecture, Small group discussion, CBL	Written / Viva voce
Describe social psychology, community behaviour and community relationship and their impact on health and disease	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe poverty and social security measures and its relationship to health and disease	K	KH	Lecture, Small group discussion	Written / Viva voce
Topic: Principles of health promotion and education				
Describe various methods of health education with their advantages and limitations	K	KH	Lecture, Small group discussion	Written / Viva voce

Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings	K	KH	Lecture, Small group discussion, Clinical postings	Written / Viva voce
Demonstrate and describe the steps in evaluation of health promotion and education program	S	SH	Small group session, DOAP session	Written / Viva voce/ Skill assessment
Topic: Nutrition				
Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Lecture	Written / Viva voce
Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	DOAP sessions, Clinical postings, CBL	Skill Assessment
Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and	K	KH	Lecture, Small group discussion, Quiz	Written / Viva voce

management				
Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	DOAP sessions, Clinical postings	Skill Assessment
Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio- cultural factors.	K	KH	Lecture, Small group discussion	Written / Viva voce
Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Lecture, Field visits	Written / Viva voce
Describe food hygiene	K	KH	Lecture, Field visits	Written / Viva voce
Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Lecture	Written / Viva voce
Topic: Demography and Family Planning				

Define and describe the principles of Demography, Demographic cycle, Vital statistics	K	KH	Lecture	Written / Viva voce
Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Lecture, Small group discussion, DOAP sessions	Skill assessment
Enumerate and describe the causes of declining sex ratio and its social and health implications	K	KH	Small group discussion, Lecture, PBL	Written / Viva voce
Enumerate and describe the causes and consequences of population explosion and population dynamics of India.	K	KH	Small group discussion, Lecture	Written / Viva voce
Describe the methods of population control	K	KH	Small group discussion, Lecture, DOAP session	Written / Viva voce
Describe the National Population Policy	K	KH	Lecture	Written / Viva voce
Topic: Health Information System				
Enumerate the sources of vital statistics including census, SRS, NFHS, NSSO etc	K	KH	Small group discussion, Lecture	Written / Viva voce

Describe the role of various sources of Health Information in health system	K	KH	Small group discussion, Lecture	Written / Viva voce
Topic: Epidemiology				
Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Lecture	Written / Viva voce
Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Lecture	Written / Viva voce
Enumerate, describe and discuss the sources of epidemiological data	K	KH	Small group discussion, Lecture	Written / Viva voce
Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Small group, DOAP sessions	Written/ Skill assessment
Enumerate, define, describe and discuss epidemiological study designs	K	KH	Lecture, Small group discussion, Lecture	Written / Viva voce
Enumerate and evaluate the need of screening tests	S	SH	Small group discussion, DOAP sessions	Written/ Skill assessment
Describe the steps in the	K	KH	Small group	Written/Viva-voce

Investigation of an epidemic of communicable disease and describe the principles of control measures			discussion, PBL	
Describe the principles of association, causation and biases in epidemiological studies	K	KH	Small group discussion, Lecture	Written / Viva voce
Describe and demonstrate the application of computers in epidemiology	S	SH	Small group discussion, DOAP sessions	Written/Skill Assessment
Topic: Basic statistics and its applications				
Formulate a research question for a study	K	KH	Small group discussion, Lecture, DOAP sessions	Written / Viva voce
Describe and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Small group, Lecture, DOAP sessions, Clinical postings	Written / Viva voce/ Project presentation
Describe and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Project presentation

Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment
Topic: Environmental Health Problems				
Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Lecture, Small group discussion, PBL	Written / Viva voce/students seminar
Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting	K	KH	Lecture, Small group discussion, DOAP session, Field Visit	Written / Viva voce
Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Lecture, Small group discussion,	Written / Viva voce
Describe the concept of solid waste, human excreta and sewage disposal	K	KH	Lecture, Field Visit	Written / Viva voce
Describe the standards of housing and the effect of	K	KH	Lecture, Small group discussion,	Written / Viva voce

housing on health			Clinical postings	
Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Lecture	Written / Viva voce
Describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Lecture, DOAP session	Written / Viva voce/ Skill assessment
Describe the mode of action, application cycle of commonly used insecticides and rodenticides	K	KH	Lecture, Field visits	Written / Viva voce
Topic: Epidemiology of communicable and non- communicable diseases				
Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Lecture, Field visits	Written / Viva voce
Describe and discuss the epidemiological and control measures including the use of essential laboratory tests	K	KH	Lecture, Field visits	Written / Viva voce

at the primary care level for non-Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)				
Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Small group discussion, Lecture, Clinical postings	Written / Viva voce
Describe the principles and measures to control a disease epidemic	K	KH	Small group discussion, Lecture	Written / Viva voce
Describe the principles of management of information systems	K	KH	Small group discussion, Lecture	Written / Viva voce
Topic: Reproductive maternal and child health				
Describe the current status of Reproductive, maternal, newborn and Child Health in India	K	KH	Small group discussion, Lecture	Written / Viva voce
Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Small group discussion, Lecture, Clinical postings	Written / Viva voce
Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Small group discussion, Lecture, Clinical postings	Written / Viva voce
Describe the reproductive,	K	KH	Small group	Written / Viva voce

maternal, newborn& child health (RMCH); child survival and safe motherhood interventions			discussion, Lecture, Clinical postings	
Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs.	K	KH	Lecture, Clinical postings, Field Visits	Written / Viva voce
Enumerate and describe various family planning methods, their advantages and shortcomings	K	KH	Small group discussion, Lecture, Quiz	Written / Viva voce
Enumerate and describe the basis and principles of the Family Welfare Program including the organization, technical and operational aspects	K	KH	Lecture	Written / Viva voce
Describe the physiology, clinical management and principles of adolescent health including ARSH	K	KH	Small group discussion, Lecture, Field Visits	Written / Viva voce
Describe and discuss gender issues and women empowerment	K	KH	Small group discussion, SDL	Written / Viva voce
Topic: Hospital waste management				
Define and classify Bio-medical waste	K	KH	Lecture, Small group discussion, visit to hospital	Written / Viva voce

Describe various methods of segregation and treatment of hospital waste	S	SH	Lecture, DOAP, visit to hospital	Written / Viva voce
Describe laws related to hospital waste management	K	KH	Lecture, Small group discussion	Written / Viva voce
Topic: Occupational Health				
Enumerate and describe the presenting features of patients with occupational illness including agricultural workers	K	KH	Lecture	Written / Viva voce
Describe the role, benefits and functioning of the employee's state insurance scheme	K	KH	Lecture, Field Visit	Written / Viva voce
Enumerate and describe specific occupational health hazards, their risk factors and preventive measures	K	KH	Lecture, Field visits	Written / Viva voce
Describe the principles of ergonomics in health preservation	K	KH	Small group discussion, Lecture	Written / Viva voce
Describe occupational disorders of health professionals and their prevention & management	K	KH	Small group discussion, Lecture, PBL	Written / Viva voce
Topic: Disaster Management				

Define and describe the concept of Disaster management	K	KH	Lecture	Written / Viva voce
Describe disaster management cycle	K	KH	Lecture	Written / Viva voce
Describe man-made disasters in the world and in India	K	KH	Lecture	Written / Viva voce
Describe the details of the National Disaster management Authority	K	KH	Lecture, Small group discussion, Field Visit	Written / Viva voce
Topic: Geriatric services				
Define and describe the concept of Geriatric services	K	KH	Lecture, Small group discussion, Clinical postings	Written / Viva voce
Describe health problems of aged population	K	KH	Lecture, Field Visit	Written / Viva voce
Describe the prevention of health problems of aged population	K	KH	Lecture, Small group discussion, PBL	Written / Viva voce
Describe National program for elderly	K	KH	Lecture	Written / Viva voce
Topic: National Health Program				
Enumerate and discuss disease specific National Health Programs	K	KH	Small group discussion, Lecture, Clinical postings	Written / Viva Voce
Describe the implementation of the National Health Program at the field level	K	KH	Small group discussion, Lecture, Field visit	Written / Viva Voce

Describe the indicators for evaluation, recent updates in the major national health programs	K	KH	Small group discussion, Lecture	Written / Viva Voce
Topic: Tribal Health				
Describe the importance of tribal health, its components and implementation	K	KH	SDL	Written / Viva Voce/ students seminar
Topic: Genetics				
Describe the importance of Genetics in Health and Disease	K	KH	SDL	Written / Viva Voce
Describe the various genetic diseases and its prevention	K	KH	SDL	Written / Viva Voce/ students seminar
Topic: Mental Health				
Define and describe the concept of mental Health	K	KH	Lecture	Written / Viva voce
Describe warning signals of mental health disorder	K	KH	Lecture	Written / Viva voce
Describe National Mental Health program	K	KH	Lecture, Small group discussion	Written / Viva voce
Topic: Health care of the Community				
Define and describe the concept of health care to community	K	KH	Lecture, Small group discussion, Field visits	Written / Viva voce
Describe community diagnosis	K	KH	Small group discussion, Clinical postings	Written / Viva voce

Describe primary health care, its components and principles	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe National policies related to health and health planning and millennium development goals	K	KH	Lecture, Small group discussion	Written / Viva voce
Describe health care delivery in India	K	KH	Lecture, Small group discussion	Written / Viva voce
Topic: Essential Medicines				
Define and describe the concept of Essential Medicine List (EML)	K	KH	Lecture, Small group discussion, Field visits	Written / Viva voce
Describe counterfeit medicine and its prevention	K	KH	Lecture, Small group discussion	Written / Viva voce
Topic: Recent advances in Community Medicine				
List important public health events of last five years	K	KH	SDL	Written / Viva voce
Describe recent outbreaks/epidemics and their prevention	K	KH	Lecture, Small group discussion	Written / Viva voce
Demonstrate awareness about laws pertaining to practice of medicine such as Clinical establishment Act and Human Organ Transplantation Act and	K	KH	Lecture, Small group discussion, PBL, Quiz	Written / Viva voce

its implications				

K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column C: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column D: DOAP session – Demonstrate, Observe, Assess, Perform, CBL- Case Based Learning, PBL- Problem Based Learning, SDL- Self Directed Learning.

Table 4: Syllabus for Community and Family Medicine Course

Syllabus – First to Ninth semester		
Modules	Theory topics	Practicals/FHAP/ ECE/Field visits
Concept of Health and Disease (Theory - 13 hours) ECE – 10 hrs)	1. Introduction to Community and Family Medicine 2. Basic concepts of health and disease 3. History of public health (Classic success stories in public health • Smallpox eradication • Cholera control (John snow) etc) – Student seminar 4. Comparison of health investment and development indicators between developed and developing countries (2hrs) 5. Dimensions and Determinants of health	Visit to PHC (ECE – 5hrs) Visit to community - Interaction with village leaders/stake holders /Community based organisations (ECE – 5hrs)

	6. Health and development 7. Spectrum of health and positive health 8. Epidemiological triad and Multifactorial causation of disease 9. Natural history of disease and theories of disease causation 10. Concepts of prevention and modes of intervention 11. Health indicators 12. Case studies on levels of prevention	
Relationship of social and behavioral sciences to health and disease (Theory- 8 hrs FHAP – 2 hrs Clinical Posting – 2 hrs)	1. Role of family in health and disease 2. Cultural factors in health and disease 3. Health seeking behavior and barriers to good health 4. Concepts in sociology and social psychology, Social Organization 5. Social factors influencing health of people 6. Case studies – Social determinants of health 7. Community behaviour and community relationship and their impact on health and disease	Socioeconomic assessment – community (FHAP) Doctor-patient relationship (Clinical posting)

	8. Poverty and its relationship to health and disease and social security measures	
Principles of Health Promotion and Education (Theory: 2 hrs ECE – 10 hrs FHAP – 4hrs)	1. Concepts and principles of Health education and promotion 2. Steps in evaluation of health promotion and education program	ECE Various methods of health education and its advantages and limitations, IEC and Theories of Behavioral change communication (BCC) Preparation of Health education materials (5 hrs) Presentation/ Health education session in the community (5 hrs) (FHAP - 4 hrs) Quit tobacco assessment / ORS preparation by mother / Handwashing Evaluation of health education materials
Nutrition (Theory: 8 hours Practicals: 4 hours FHAP:4 hrs Clinical	1. Classification of major foods and their nutritive value 2. Macro and micro nutrients- physiological functions, dietary sources, recommended dietary allowances 3. Dietary goals, balanced	Practicals Nutritive value of food and food labelling Plan and recommend a balanced diet within the socio-cultural, and economic milieu for a normal adult male/female/a pregnant/lactating/postpartum woman/

posting: 4 hrs)	diet, nutrition through lifecycle - Nutritional requirements of special groups: Mothers, Children and the Elderly - Nutritional deficiency diseases of public health importance - Protein Energy Malnutrition, Severe Acute Malnutrition and Management of Severe Acute Malnutrition Children - National Nutrition Policy, and important national nutritional Programs - Integrated Child Development Services Scheme (ICDS)	an under five child/ an adolescent FHAP: (4 hrs) Social and cultural practices in nutrition and health Nutritional counselling on anemia, IYCF Clinical posting (field visits): (4 hrs) - Visit to Food safety dept - Visit to Anganwadi centre - Visit to Public Health Microbiology / Reference laboratories
Demography and Family planning (Theory: 10 hours)	- Demographic profile of India and its impact on health - Demographic cycle, sex ratio and Population Pyramid, Dependency - Demographic indices	Practicals Family planning specimens/models Calculation and interpretation of demographic indices including birth rate, death rate, fertility rates FHAP

Practicals: 4 hours FHAP:2 hrs)	including birth rate, death rate, Fertility related Statistics 4. Health aspects of Family Planning and Welfare concept: Eligible Couple, Target Couple, Couple Protection rate 5. Family Welfare Program and National population policy 6. Unmet Needs of Family Planning and Community Needs Assessment Approach 7. Contraceptive Methods - I 8. Contraceptive Methods - II 9. MTP Act 10. Recent development in Family Planning services	Unmet Needs of Family Planning and Community Needs Assessment Approach
Health Information System Theory – 2 hours Practical – 2 hours	1. Sources of health information in epidemiology 2. Census and SRS	HMIS one month report evaluation

Epidemiology and study designs – I (Theory: 14 hours Practicals: 16 hours) Screening	1. Introduction, definition and uses of epidemiology 2. Measurements of disease frequency and outcomes in epidemiology 3. Overview of epidemiological study designs 4. Sampling, Sample Size determination 5. Common sampling Methods 6. Methods of data collection 7. Descriptive studies (including ecological studies) 8. Cross-sectional analytical studies 9. Measures of association & effect 10. Case control studies 11. Cohort studies 12. Experimental studies & non randomized trials 13. Errors of measurement, confounding and bias 14. Concepts, uses, criteria of screening	Morbidity indices -I Morbidity indices part-II Exercise on developing appropriate epidemiological study design and method for a given public health problem. Sample size estimation and sampling exercises Presentation of cross-sectional study from a journal Calculate and interpret various epidemiological measures of association- part-I Calculate and interpret various epidemiological measures of association- part-II Exercises to Calculate and interpret the sensitivity, specificity, positive predictive value of tests given a set of data.
Epidemiology and study designs – II & Basic statistics (Theory: 6 hours)	1. Standardization 2. Approach to data analysis: (summary & inferential statistics) 3. Summarizing the data: measures of central	1. Demonstration and hands on exercises of application of S-Excel, Epi Info etc (Presentation of statistical data- frequency distribution, measures of central tendency)

Practicals: 8 hours)	tendency and variability 4. Ethics in medicine 5. Ethics in medical research 6. Qualitative research: an overview	and dispersion) 2. (4 hrs) Demonstration and exercises on the application of elementary statistical methods including test of significance in various study designs and interpretation of statistical tests and Display of data 3. Biostatistics exercises
Environment and Health Theory: 12 hours Practicals: 12 hours Field visit: 12 hours FHAP (6 hrs) Seminar (2 hrs) Quiz (2 hrs)	1. Concept of safe and wholesome water, water pollution and requirements of a sanitary source of water 2. Methods of purification of water on large and small scale with emphasis on chlorination of water 3. Water quality and standards 4. Etiology and basis of water borne diseases, Surveillance of drinking water quality, Hardness of water and treatment 5. Access to safe water and Jal Jeevan (safe water) Mission 6. Swimming pool sanitation and Rain water harvesting 7. Assessment of air quality and pollution 8. Health impact of air pollution	Clinical posting field visits 1. Visit to gram panchayat for point of use testing of water quality standards 2. Visit to water treatment plant 3. Visit to sewage treatment plant 4. Visit to milk pasteurization plant 5. Visit to Slaughter house 6. Visit to meteorological department FHAP (2hrs) Standards of housing and the effect of poor housing on health Role of open-air defecation in transmission of diseases & Access to sanitary latrine

	9. Climate change and public health aspects of global warming 10. Assessment of ventilation, lighting, noise and radiation 11. Impact of urbanization on health and disease. 12. Role of vectors in the causation of diseases	FHAP (4 hrs) 1. Assessing barriers to adapt ODF free defecation – household survey 2. Domestic breeding checking- household survey Practicals (12 hours) 1. Water collection, estimation of chlorine demand/ residual chlorine content of drinking water, OT test (2hrs) 2. Study of the Model Instrument in Environment (2hrs) 3. Identifying features of vectors of public health importance (6 hours) 4. Integrated vector management, Mode of action, dose, application cycle and techniques of commonly used insecticides. (2hrs)
Epidemiology of Communicable diseases	1. Introduction to infectious disease epidemiology –part I 2. Introduction to infectious disease epidemiology –part II	1. Case studies on common infectious diseases of public health importance

(Theory: 30 hours Practicals: 4 hours)	3. Monitoring and surveillance 4. Epidemiology, management and preventive aspects of Measles, Mumps, Rubella 5. Epidemiology, management and preventive aspects of Diphtheria, Pertussis 6. Epidemiology, management and preventive aspects of tetanus/ tetanus Neonatorum 7. Epidemiology, management and preventive aspects of ARI 8. Epidemiology, management and preventive aspects of SARS/covid 19 9. Epidemiology of Plague, Influenza, 10. Epidemiology, management and preventive aspects of poliomyelitis 11. Epidemiology, treatment and preventive aspects of TB 12. Epidemiology, treatment and prevention of Malaria 13. Epidemiology, management and preventive aspects of Filaria 14. Epidemiology, management and preventive aspects of Leprosy 15. Epidemiology, management and prevention of Dengue, chikun	2. Case studies on outbreak Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures Pandemic preparedness

	gunya	
	16. Epidemiology, management and preventive aspects of Kala-azar	
	17. Epidemiology, management, prevention and control of J. E., Encephalitis, KFD	
	18. Epidemiology, management and preventive aspects of Viral Hepatitis	
	19. Epidemiology, management and preventive aspects Typhoid	
	20. Epidemiology, management and preventive aspects of Diarrhoeal Diseases	
	21. Epidemiology, management and preventive aspects of Food poisoning	
	22. Epidemiology of Yellow Fever, Meningococcal Meningitis	
	23. Zoonotic infections	
	24. Epidemiology, management and preventive aspects of Rabies	
	25. Epidemiology and control of Helminthic, Protozoal infections	
	26. Epidemiology, treatment and preventive aspects of STI	
	27. Epidemiology, treatment and preventive aspects of AIDS	
	28. Rickettsial diseases	
	29. Emerging and reemerging infections	

	30. Hospital acquired infections	
Epidemiology of Non-Communicable Diseases (Theory: 11 hours Clinical posting: 8 hours)	1. Approach to NCDs (Risk factors) 2. Approach to health promotion: Individual approach 3. Approach to health promotion: Setting spaced approach 4. Epidemiology, health hazards, measurement and prevention of obesity 5. Epidemiology and Control of Diabetes Mellitus 6. Epidemiology and Control of Hypertension 7. Epidemiology and Control of Cardio Vascular Diseases 8. Epidemiology and Control of Stroke 9. Epidemiology and control of cancers 10. Epidemiology and Control of Accidents 11. Epidemiology and Control of Blindness	Clinical posting 1. Community Based Assessment Checklist – household survey 2. Cardiovascular risk prediction – case studies 3. NCD risk factor assessment 4. DASH diet, lifestyle modification counselling

Reproductive and Child Health Theory: 17 hours Practicals: 4 hours Clinical posting: 2 hours FHAP: 2 hrs Seminar: 2 hours Quiz: 2 hours	1. Current status of Reproductive, maternal, newborn and Child Health 2. Risk approach in MCH 3. Antenatal care 4. Post natal care 5. Intranatal Care & Neonatal Care 6. Indicators of MCH care (MMR, IMR, under 5 MMR) 7. Low birth weight babies & small for date babies 8. Infant and young child feeding practices 9. Growth and Development 10. Childhood morbidities 11. Reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions 12. India Newborn Action Plan 13. Immunological basis of vaccines 14. Cold chain 15. National Immunisation schedule and adverse events related to immunization 16. Adolescent health 17. Gender issues and women empowerment	Practicals 1. IMNCI video demo and case studies 2. Immunization Spotters (2 hours) FHAP Local customs and practices during pregnancy, childbirth, lactation and child feeding practices Clinical posting Risk communication of ANC, Assessment of birth preparedness and complication readiness

Hospital Waste Management Theory: 3 hours Practicals: 2 hours Clinical posting: 4 hrs	1. Definition and classification of hospital wastes, Various methods of treatment of hospital waste 2. Disinfection, disinfectants, disposal of infective material, concurrent & terminal disinfection 3. Laws related to hospital waste management	Practicals: 1. Hospital waste segregation of various types of hospital wastes Clinical posting (field visits): 1. Visit to bio-medical waste center 2. Visit and interaction with hospital infection control committee
Occupational Health Theory: 7 hours Practicals: 2 hours Clinical posting: 2 hrs	1. Concepts of ergonomics 2. Risk factors and presenting features of occupational health hazards 3. Specific occupational health hazards 4. General measures of prevention & control of occupational diseases 5. Occupational disorders of health professionals and their prevention & management 6. Social security and labour laws and factory act 7. Role, benefits and functioning of the employee's state insurance scheme	Practicals: 1. Exercise on occupational history taking (2hrs) Clinical posting (Field visit): 1. Visit to Industry- Assessment of occupational environment and preventive measures

Disaster Management (Theory: 3 hours Practicals: 4 hours Clinical posting: 2 hrs.)	1. Definition, natural and manmade disasters in the world and in India 2. Health Hazard of Disasters Disaster management cycle 3. Disaster Preparedness, Disaster Mitigation and Management and its application, Functions of National Disaster management Authority	Practicals: 1.Scenarios on various disasters 2. Presentation of newspaper clippings on disasters (prediction, disaster impact, disaster relief measures, post disaster impact and rehabilitative measures) for regional events in the last one year Clinical posting (Field visit) Visit to NDMA office
Geriatric services (Theory: 2 hours Clinical posting: 4 hrs.)	1. Definitions, Concept of Geriatric services, Health problems of aged population , 2. Prevention of health problems of aged population and National program for elderly	Clinical posting (Field visit): 1. Visit to old age home 2. Visit to geriatric clinic at SDH/District hospital
National Health Programmes (Theory: 15 hours Practicals: 10 hours	1. Janani Surakshya Yojana Janani Sishu Surakshya Karyakram 2. Rashtriya Bal Suraksha Karyakram, 3. Rashtriya Kishori Shakti Karyakram 4. Reproductive, maternal, neonatal, child health plus adolescence 5. National Rural Health Mission	(Deriving epidemiological indices for vector borne diseases, deriving epidemiological indices for TB/HIV/leprosy, Case studies - Maternal care, Case studies – Immunisation & AEFI, Health promoting work place model) – 6 hours Visits to the Dist Offices/ Units/ clinics related to implementation of

	6. National Urban Health Mission 7. National Program for Health Care of Elderly, National Policy on Older Persons 8. Revised National TB Control Program 9. National Leprosy Eradication Programme 10. National Vector Borne Disease Control Programme 11. National AIDS Control Programme 12. Integrated disease surveillance program 13. National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke 14. National Health Policy 15. National Programme for Palliative Care	Disease Control Measures of Communicable Diseases (NACO/TB offices) (can be covered in two days of NHM office visit)
Tribal health (Theory: 1 hour)	Specific health problems and service delivery approaches	
Genetics Theory: 2hours Seminar: 2 hrs	1. Importance of Genetics in Health and Disease, Various genetic diseases and its prevention 2. Recent advances in Epi genetics	

Mental Health (Theory: 2 hours Practicals - 2)	1. Mental Health- definitions, concepts, Warning signals of mental health disorder 2. National Mental Health program	Assessment of mental health (PHQ & K 10 scales)- self & peer to peer assessment
Health care of the community (Theory: 8 hours Practicals – 4 hours Clinical posting:8 hours)	1. Introduction to health system 2. Health system assessment 3. Definition and concept of health care to community Health care delivery in India 4. Primary health care- definition, components and principles, Universal health coverage 5. Different health committees 6. Millennium development goals, SDG 7. National Quality Assurance System 8. Steps in community diagnosis – situational analysis	Practicals: 1. Case studies – Tribal health 2. Health committees – small group discussion Clinical posting 1. Visit to Subcentre 2. Visit to CHC 3. Community diagnosis 4. Appraisal of health centres (PHC, HWC) – IPHS/NQAS
Health planning and management (Theory: 11 hours Practicals: 8 hrs Clinical posting: 2hrs)	1. Health work force in India 2. Health planning – definition and concepts 3. Planning Cycle 4. Health management techniques 5. Inventory management 6. Concept of health care team Leadership styles	Practicals 1. Desk review on India rural health statistics, Assessment of Monitoring and Evaluation indicators for the programmes 2. Case studies – leadership styles 3. Case studies: Conflict management 4. Assessment of Inventory management: visit to PHC/case,

	7. Conflict management 8. Monitoring & evaluation 9. Health financing Indian context 10. Health budget and different types 11. Health Insurance schemes	Immunization and calculation of vaccine requirements studies, Case studies: Adolescent friendly health services Clinical posting Preparation of health education material to disseminate health insurance schemes
International health (Theory: 1 hr SDL – 4 hrs)	1. Definition and concept of international health, Roles of various international health agencies (4 hours of SDL) 2. International health Regulation, Public Health Emergency of International Concern	
Essential Medicines (Theory: 2 hours)	1. Definition and concepts of Essential Medicines, Roles of essential medicine in primary health care 2. Pharmacovigilance	
Recent advances in Community Medicine (Theory: 3 hours)	1. Recent transformation in health system 2. Role of GIS in outbreak & tracking 3. Clinical establishment Act and Human Organ Transplantation Act and its implications	

Table 4: List of topics suggested for integrated teaching

S.No	Suggested Topics	Integrating departments
1	Contraception	Physiology, Obstetrics and Gynaecology
2.	Infection control practices	Microbiology, Surgery, Hospital Administration
3.	Tuberculosis	Microbiology, Pathology, Respiratory Medicine
4.	Disaster Management	Forensic Medicine and Toxicology, District Disaster Management Authority
5.	Leprosy	Dermatology, Microbiology, Physical Medicine and Rehabilitation
6.	National Programme for Control of Blindness	Ophthalmology, District Blindness Control Society
7.	National Mental Health Programme	Psychiatry, Clinical Psychology, Forensic Medicine and Toxicology
8.	Rabies	Microbiology, Animal Husbandry
9.	Child Development Delays	Paediatrics, Psychiatry, Physical Medicine and Rehabilitation
10.	Supplementary Nutrition	Paediatrics, Nutrition Unit, Department of Women and Child Development
11.	Vaccines and Immunization	Paediatrics, Medicine, College of Nursing
12.	National Anaemia Control Programme	Medicine, Obstetrics and Gynaecology, Paediatrics, Pathology
13	HIV	Medicine, ART Medical Officer, Paediatrics, Microbiology, Obstetrics and Gynaecology
14	Hepatitis	Medicine, Microbiology, Pharmacology
15	Tropical fever	Medicine, Microbiology, Pharmacology, Paediatrics

Table: Teaching Learning methods in Community and Family Medicine

S.No	Teaching Learning Methods
1.	Lecture
2.	Small group discussion
3.	DOAP session – Demonstrate, Observe, Assess and Perform
4.	Case Based Learning
5.	Problem Based Learning
6.	Self-Directed Learning
7.	Field visits
8.	Role Play
9.	Quiz

Table: Assessment methods in the Department of Community and Family Medicine

S.No	Assessment Methods
1.	Written Exam
2.	Viva Voce
3.	Skill assessment – OSPE/OSCE
4.	Project & Case Presentation
5.	Students’ seminar

Assessment plan

The students will be assessed through Portion Completion Tests (PCTs)/notified tests at the end of modules, end semester theory examinations (3rd, 4th, 6th, 7th & 8th semesters), end clinical postings practical examinations and pre-professional examinations before appearing in the final professional examinations.

Portion Completion Test (PCT)/ notified tests

- Portion completion tests (PCT) will be written examinations conducted at end of modules.
- Feedback will be provided to students based on the PCT scores.

- PCT marks will not be included in the internal assessment marks

Internal Assessment

- The marks scored in the end semester theory examinations, end clinical postings practical examinations and pre-professional examinations will be given weightage towards calculation of internal assessment marks.
- End semester theory examinations will be conducted at the end of 3rd, 4th, 6th, 7th and 8th Semesters.

Table: Assessment Pattern for End Clinical Posting Practical Exam

S no	Assessment method	Marks
1	Field participation	05
2	Case Presentations	20
3	Project Presentation	10
4	Practical Exercises	20
5	Spotters	10
6	OSPE//OSCE	10
7	Viva Voce	20
8	Record book	05
TOTAL		100

Final Professional Examinations

ALL INDIA INSTITUTE OF MEDICAL SCIENCES
MADURAI, TAMIL NADU
END SEMESTER EXAM (7TH) – 2025

Registration Number: _____

Date: 15.05.2025

COMMUNITY & FAMILY MEDICINE

Duration: 20 mins

Instruction: Answer all questions

Max marks: 20

20x1=20 Marks

SECTION-A

S.no	Questions	Responses
1)	Tracking of BP implies	a. ☐ BP increase with age b. ☐ BP decreases with age c. ☐ BP of hypotensive become hypertensive d. ☐ BP of hypotensive remain hypotensive
2)	All are true about Rheumatic Fever in India except:	a. ☐ RF is reported in 1-3 % of streptococcal infections b. ☐ More commonly seen in 5-15 years age group c. ☐ Except carditis, other manifestations do not cause permanent damage d. ☐ In Revised Jones' Criteria, evidence of preceding streptococcal infection is taken for last 21 days
3)	Which of the following indices of obesity is height independent?	a. ☐ Quetelet's Index b. ☐ Ponderal Index c. ☐ Broca's Index d. ☐ Corpulence Index
4)	Normal range of BMI as per Asian cut off is:	a. ☐ 18.5 to 24.99 b. ☐ 22.5 to 24.99 c. ☐ 18.5 to 22.5 d. ☐ 18.5 to 22.99
5)	The most common cause of blindness in India is:	a. ☐ Cataract b. ☐ Trachoma c. ☐ Refractive errors d. ☐ Vitamin A deficiency
6)	Which one of the following is NOT a characteristic of non-communicable disease:	a. ☐ Well defined etiologic agent b. ☐ Long latent period c. ☐ Multifactorial causation d. ☐ Variable onset
7)	What are the cut-off values for waist circumference and waist-hip ratio for Indian men and women, respectively?	a. ☐ 85 cm & 0.85 for men; 80 cm & 0.80 for women b. ☐ 85 cm & 0.90 for men; 80 cm & 0.85 for women c. ☐ 90 cm & 0.9 for men; 80 cm & 0.85 for women d. ☐ 95 cm & 1.0 for men; 85 cm & 0.9 for women

8)	What is the WHO Recommended duration of moderate activity per week for adults?	a. ☐ 50-100 minutes b. ☐ 100-250 minutes c. ☐ 150-300 minutes d. ☐ 200-350 minutes	
9)	What does the 25×25 target for non-communicable diseases mean	a. ☐ 25% reduction in incidence of NCDs by 2025 b. ☐ 25% reduction in prevalence of NCDs by 2025 c. ☐ 25% reduction in premature mortality of NCDs by 2025 d. ☐ 25% reduction in treatment gap of NCDs by 2025	
10)	Which of the following cervical cancer screening techniques is adopted under the National Health Mission	a. ☐ VIA b. ☐ VILI c. ☐ Pap smear d. ☐ Cervical Biopsy	
11)	Match the follow up investigations for Diabetes mellitus and their frequency	A. Renal Function Tests B. HbA1C C. Blood sugar	i. Once every 3 months ii. Once every 6 months iii. Annually
		a. ☐ A- ii, B- i, C-iii b. ☐ A- ii, B- iii, C-i c. ☐ A- iii, B- ii, C-i d. ☐ A- iii, B- i, C-ii	
12)	The WHO definition of blindness is	a. ☐ < 6/60 in the best eye with best possible visual correction b. ☐ < 3/60 in the best eye with best possible visual correction c. ☐ Absence of finger counting at 6-meter distance in the best eye d. ☐ Absence of finger counting at 3-meter distance in the best eye	
13)	Low birth weight is found to have increased risk of obesity and Diabetes in adulthood. This finding is consistent with	a. ☐ Hardy Weinberg law b. ☐ Barker's hypothesis c. ☐ Malthus theory d. ☐ Rose hypothesis	
14)	What is the most prevalent risk factor for NCDs among adults in India as per the National NCD Monitoring Survey (NNMS 2017-18)?	a. ☐ Current tobacco use b. ☐ Current alcohol use c. ☐ Inadequate intake of fruits and/or vegetables d. ☐ Insufficient physical activity	
15)	The final disposal method for waste segregated in blue boxes is	a. ☐ Iron foundry b. ☐ Sanitary landfill c. ☐ Recycling d. ☐ Incineration	
16)	Discarded antibiotics are segregated in	a. ☐ Yellow b. ☐ Red c. ☐ Blue d. ☐ White	
17)	Not true about Screw feed technique is:	a. ☐ 80% volume reduction b. ☐ Pathological waste are removed c. ☐ Weight is decreased by 20-30% d. ☐ Based on non-burn thermal treatment	

18)	Which colour-coded person is given first preference in disaster triage?	a. ☐ Black b. ☐ Green c. ☐ Yellow d. ☐ Red	
19)	Which of the following is the lead agency for preparing disaster Management plans?	a. ☐ NDMA b. ☐ NCMC c. ☐ MOHFW d. ☐ IMD	
20)	Match the following	A. Primordial prevention B. Primary prevention C. Secondary prevention D. Tertiary prevention	i. Screening program ii. Screening for complications iii. Healthy diet in school children iv. Lifestyle changes in obese
		a. ☐ A-iv, B-iii, C-i, D-ii b. ☐ A-iv, B-iii, C-ii, D-i c. ☐ A-iii, B-iv, C-i, D-ii d. ☐ A-iii, B-iv, C-ii, D-i	

ALL INDIA INSTITUTE OF MEDICAL SCIENCES
MADURAI, TAMIL NADU
END SEMESTER EXAM (7TH) – 2025

COMMUNITY & FAMILY MEDICINE

Duration: 2hrs 40mins

Max marks: 80

Instructions: Answer all questions

Illustrate answers with suitable diagrams & clinical significance wherever necessary

Section-B

I. Long Answer Question

1x10=10 marks

1. Discuss Coronary Heart Disease (CHD) in India. Justify the sentence “the aetiology of CHD is multifactorial”. (2+8)

II. Short Answer Questions

4x5=20 marks

2. Rule of halves in context to hypertension in community
3. Explain the environmental factors as a major cause of cancer
4. Screening for Diabetes
5. Discuss the changing concepts in eye health care

III. Very Short Answer Questions

4x2.5= 10 marks

6. Dietary approach to stop hypertension
7. Stroke control programme
8. Population based cancer registries
9. Self-care in Diabetes

Section-C

I. Long Answer Question

1x10=10 marks

1. Discuss the epidemiological determinants of Rheumatic Heart Disease (RHD). Describe two preventive approaches for RHD. (5+5)

II. Short Answer Questions

4x5=20 marks

2. Health hazards of health care waste
3. Disaster preparedness
4. Primary prevention in lung cancer
5. Assessment of obesity

III. Very Short Answer Questions

4x2.5=10 marks

6. List biomedical waste items permitted in the red bag as per BMW Management Rules.
7. What personal protection to be observed during an earthquake?
8. Accidentology
9. Prevention of oral diseases

Blueprint for theory question papers

AIIMS Madurai
Community & Family Medicine

Paper I

S.no	Topic	LAQ	SAQ	MCQ
1	Communication for health education*	1	1	1
2	Concept of health and diseases*	1	2	2
3	Disaster management		1	1
4	Environment and health		2	2
5	Epidemiology principles*	1	2	3
6	Health information and medical statistics*	1	1	2
7	Man and medicine			2
8	Medicine and social sciences		1	2
9	Mental health		1	1
10	Occupational health		2	2
11	Screening & measurement of health and diseases*	1	2	2
		Any 2	Any 12	20

- Either LAQ or SAQ given

Paper II

S.no	Topic	LAQ	SAQ	MCQ
1	Demography and family planning		1	2
2	Epidemiology communicable disease*	1	2	2
3	Epidemiology non communicable disease*	1	2	1
4	Essential and counterfeit medicines			1
5	Genetics and health		1	1
6	Health care of the community		1	2
7	Health planning and management		2	2
8	Health programs*	1	2	2
9	Hospital waste management		1	1
10	International health		1	1
11	Nutrition and health*	1	1	2
12	Preventive Obstetrics & pediatrics*	1	1	3
		Any 2	Any 12	20

*Either LAQ or SAQ given

THEORY EXAMINATION: PAPER PATTERN & MARKS DISTRIBUTION

Question paper pattern: Each theory paper of 100 marks consists of the following pattern (Total duration : 3 hrs ; Section A – 20 mins; Section B and C : 2 hrs 40 mins)

Theory	Pattern	Marks	Total marks = (100+100 = 200)
Paper I 100 marks	Section A (Multiple Choice Questions with max. 4 options) comprising of Analytical, Reasoning and assertion type, True/False type, Matching type, image based	20 x 1 mark	20 marks
	Section B (Subjective Question) - One (1) Long Question (Structured) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
	Section C (Subjective Question) - One (1) Long Question (Structured) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
Paper II 100 marks	Section A (Multiple Choice Questions with max. 4 options) comprising of Analytical, Reasoning and assertion type, True/False type, Matching type, image based	20 x 1 mark	20 marks
	Section B (Subjective Question) - One (1) Long Question (Structured) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks
	Section C (Subjective Question) - One (1) Long Question (Structured) - Six (6) Short Answer Questions	1 x 10 = 10 marks 6 x 5 = 30 marks	40 marks

S.no	Type	No of Questions	Marks	Total Marks
1	Long Case	1	60	60
2	Problem solving exercises	4	10	40
3	OSPE/OSCE	4	10	40
4	Spotters	10	2	20
5	Viva			40
TOTAL				200

Criteria for passing the subject:

Exam	Internal Assessment	Final Professional Exam	Total	Minimum marks for passing
Theory	200	200	400	200
Practical	200	200	400	200
Total	400	400	800	400

Recommended Textbooks

1. Park's Textbook of Preventive & Social Medicine.
2. IAPSM's Textbook of Community Medicine
3. Textbook of Community Medicine: RajvirBhalwar
4. Mastering Practicals: Community Medicine: Poornima Tiwari & Shashank Tiwari
5. Methods in Biostatistics: B.K. Mahajan
6. ICMR. Standard Treatment Workflows. Available from <https://stw.icmr.org.in/stws-download>

Recommended online resources

1. World Health Organization. Available from <https://www.who.int/>
2. Ministry of Health & Family Welfare. Available from <https://main.mohfw.gov.in/>
3. National Health Systems Resource Centre. Available from <https://nhsrcindia.org/publication>
4. Indian Council of Medical Research. Available from <https://main.icmr.nic.in/content/guidelines-0>
5. National Centre for Disease Control. Available from <https://ncdc.mohfw.gov.in/index1.php?lang=1&level=1&sublinkid=141&lid=158>

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All India Institute of Medical Sciences, Madurai (Tamil Nadu)
(Under PMSSY Division, Ministry of Health & Family Welfare, Government of India)

**UNDERGRADUATE MBBS
PHASE III COURSE CURRICULUM**

2024-25

अखिल भारतीय आयुर्विज्ञान संस्थान, मदुरै
All India Institute of Medical Sciences, Madurai (Tamil Nadu)
(Under PMSSY Division, Ministry of Health & Family Welfare, Government of India)

UNDERGRADUATE MBBS PHASE III COURSE CURRICULUM

2024-25

This document is compiled by Academic Committee AIIMS-Madurai under Chairman of Academic committee Prof (Dr.) Ganesh Babu C.P., Faculty Incharge (Academics & Administrations) All India Institute of Medical sciences (AIIMS)-Madurai, Tamil Nadu.

Disclaimer: This information has been compiled from various documents of other institutes such as AIIMS, New Delhi, AIIMS, Bhubaneswar and JIPMER, Puducherry and has been updated in April 2023. Claims of errors or omissions in information contained herein must be substantiated with supporting documents.

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HoD General Surgery

HoD OBG

HoD Ophthalmology

HoD ENT

HoD Pediatrics

HoD Dermatology

HoD Psychiatry

HoD Orthopedics

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AIMS MADURAI

1. INTRODUCTION AND GENERAL CONSIDERATIONS OF MBBS (UG) CURRICULUM

1.1 Graduate medical curriculum is oriented towards training students to undertake responsibilities of a physician of first contact who is capable of looking after the preventive, promotive, curative and rehabilitative aspect of medicine.

1.2 The training would be broad based and flexible, aiming to provide an educational experience of the essentials required for health care in our country as well as be of such quality so as to be able to meet internationally acceptable standards.

1.3 The educational experience would emphasize health, wellness and community orientation.

1.4 Enough experiences will be provided for self-learning. Methods and techniques that would ensure this process would become a part of teaching-learning process.

1.5 Adequate emphasis would be placed on cultivating logical and scientific habits of thought, clarity of expression and independence of judgment, as well as the ability to collect and analyse information and correlate them. Every attempt would be made to encourage students to participate in small group discussions and seminars, to enable them to develop personality, character, expression of ideas and other characteristics which are necessary for a medical graduate to function either in solo practice or as a team leader.

1.6 Faculty members should avail of modern educational technology while teaching the students and in order to attain this objective. The Medical Education Unit shall organize CMEs and Workshops for faculty development and provide learning experiences and training to the teachers.

1.7 To derive maximum advantage out of this revised curriculum, the vacation period to students in one calendar year should not exceed one month, during the 4½ years course.

1.8 Students will be trained to be a:

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

2. GOALS AND OBJECTIVES OF UNDERGRADUATE COURSE (MBBS)

OBJECTIVE OF MEDICAL GRADUATE TRAINING PROGRAMME

NATIONAL GOALS:

At the end of undergraduate program, the medical student should be able to:

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

INSTITUTIONAL GOALS:

(I) In consonance with the national goals each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The undergraduate students coming out of a medical institute should:

- a. Be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- b. Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- c. Appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- d. Be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- e. Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of medicine.
- f. Be familiar with the basic factors which are essential for the implementation of the National Health Programmes including practical aspects of the following:
 - i). Family Welfare and Material and Child Health (MCH) (Appendix A)
 - ii). Sanitation and water supply
 - iii). Prevention and control of communicable and non-communicable diseases

- iv). Immunization
- v). Health Education

g). Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery.

h). Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.

i). Be able to work as a leading partner in health care teams and acquire proficiency in communication skills and be competent to work in a variety of health care settings.

k). Have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

II). All efforts must be made to equip the medical graduate to acquire the skills as detailed in APPENDIX B.

At the end of the MBBS course, the learner shall be able to:

1. Diagnose and manage common health problems of the individual and the community appropriate to his/her position as a member of the health team at primary, secondary and tertiary levels.
2. Practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems;
3. Practice Evidence Based Medicine, appreciating the rationale for different therapeutic modalities and be familiar with the administration of “essential drugs” and their common side effects;
4. Appreciate the psycho-social, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients/relatives, in discharging one’s professional responsibilities;
5. Be familiar with the various National Health Programs, and the ways in which they are being implemented, and actively participate in implementation of these programs;
6. Acquire basic management skills in the area of materials, financial and human resources;
7. Demonstrate communication skills, both verbal and written to establish effective communication with the clients (patients, relatives and general public), health team partners, and scientific community;
8. Practice medical ethics in patient care, service delivery, and research.
9. Develop attitude for self-directed learning and acquire necessary skills including the use of appropriate technologies, for pursuing self-directed learning for a life time

3.MBBS COURSE: DURATION, PHASES, NEW ELEMENTS, TEACHING AND ASSESSMENTS

Duration of the Undergraduate medical course years

The total duration of undergraduate MBBS course will be including Internship (4.5 + 1 Year = Total 5.5 Years)

Phases: Subjects covered during different Phases of MBBS

MBBS Year	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
	Course Commencement									Ist MBBS		
1st Professional										2nd MBBS		
2nd Professional				Third MBBS								
3rd Professional												
Internship				Internship								

Phases	Semester	Subjects	Duration
Phase I	1 st & 2 nd Semester	Anatomy, Physiology, Biochemistry, Community & Family Medicine	1 year
Phase II	3 rd , 4 th & 5 th Semester	Pathology, Microbiology, Pharmacology, Forensic Medicine & Toxicology, Community & Family Medicine.	1.5 year
Phase III	6 th , 7 th , 8 th & 9 th Semester	Community and Family Medicine*, General Medicine, Medicine Allied Subjects (Dermatology & Psychiatry) General Surgery, Surgery Allied Subjects (ENT, Ophthalmology, Orthopaedics, Radiodiagnosis, Anaesthesiology) Obstetrics & Gynaecology Paediatrics.	2 years

- CFM subject will be covered Phase I to Phase III and have exams at Phase III

The academic program of the MBBS course must be completed within 9 years from the date of joining (excluding the compulsory internship period).

Maximum permissible duration for each phase shall be four years and a maximum four attempts (including the annual regular and supplementary Professional examinations) in any subject will be permitted.

New Elements introduced

Foundation Course

Horizontal and vertical integration of systems and topics

Early clinical Exposure

Regional Language classes

Family adoption program

Early community exposure

E learning

Student Portfolios (Log Books, Clinical Record Books)

Community educational tours and field trips

Research: participation in national student research projects

ELIGIBILITY TO APPEAR FOR PROFESSIONAL EXAMINATION (SAME FOR ALL 3 PHASES)

ATTENDANCE

1. 75% attendance, for theory and 80% for Clinical postings in each subject of appearing in the examination. Theory Attendance includes, attendance in the Lectures, Small group discussions, practical's, tutorials, demonstrations, Student seminars, Self-Directed learning, Clinical Postings include participating in activities in all clinical care areas, OPD, OT, Bedside rounds, Diagnostic areas.
2. Attendance of 75% in theory and 80% of Clinical postings is inclusive of Allied subjects for eligibility for appearing in Major subjects. E.g, Student must have attendance of 75% theory and 80% in Clinical postings in General Medicine, and Psychiatry, Dermatology individually to appear for General Medicine Examination. Even if the student has overall attendance of 75% Theory and 80% Clinical postings in General Medicine and Dermatology & Psychiatry but falls short of the in any one of the subjects, then Student will not be allowed to appear in the final examination. Similar calculations will be considered in General Surgery and Allied subjects too.
3. In Exceptional Cases of Medical illness and etc, Academic Committee will verify the merits of absence with the documents, past academic performance, and formative assessment scores and recommends to the competitive authority Discretions on case-to-case basis.

INTERNAL ASSESSMENT MARKS

- 50% in Internal Assessment Theory
- 50% in Internal Assessment Practical including viva voce
- Eligibility of the candidates is for each individual subject separately.
- Students cannot write any subject in part. (Theory and Practicals)

- Students Who are ineligible in a Major subject, and Eligible in Minor subject, they can appear for Major subject alone separately. Applicable of General Medicine and General Surgery
- If the candidate fails in either theory or practical examination, he/she has to appear again for both theory and practical examination of the concerned subject.

FORMATIVE/INTERNAL ASSESSMENT

n-1 pattern of mark calculation for notified tests will be done for all phases. Attending in preprofessional is must.

Phase I and II

- Notified tests (IA) (not less than 1 per semester of teaching) - 60%
- Pre professional exam - 40%

Phase III

- Notified tests (IA) (not less than 1 per semester of teaching) - 60%
- Pre professional exam - 40%

Other important changes

- Student has to pass in all the subject in Phase I to move on to Phase II.
- Phase II students if they failed in any subject or all subjects can carry their subject to phase III. However, all phase II subjects must be cleared to become eligible to write Phase III subjects.
- **Extraordinary-notified test:** An extraordinary, notified test will be conducted by the departments before the preprofessional exam (for students who are not eligible based on IA). Marks from the extraordinary notified test can be used to replace the mark of one of the notified tests.
- **Improvement Exams and Supplementary Examination Policy:** Once preprofessional exam is completed for eligible student, Improvement exams will be conducted for ineligible students. The candidate's previous total IA marks will now account for 60% (both notified test marks and preprofessional marks combined) and the improvement exam marks will account for the remaining 40%. The combined score is considered as new IA mark for that candidate.

FORMATIVE ASSESSMENT

As the number of T/L hours for each of the subjects vary, following number of Internal Assessments will be held.

Subject	Theory Internal Assessment	End of the posting Internal Assessment (Max) Marks)
General Medicine	VI Semester (70 GM+15 Psy+15 Derm=100) VII Semester (100) VIII Semester (70 GM+15 Psy+15 Derm=100) IX Semester (Pre-professional Examination) (200 Marks) (GM-150, Derm-25, Psych-25)	III Semester (30) IV Semester (50) VI Semester (50) VII Semester (50) VIII Semester (50) IX Semester: Pre-Professional (200) (GM-160, Derm-20, Psyc-20)
Psychiatry	VI Semester (15) VIII Semester (15) IX Semester (25) Pre-Professional	III Semester: 10 V Semester 50 Converted to 10 VII Semester 50 converted to 10 IX Preprofessional (20 along with GM)
Dermatology	VI Semester (15) VIII Semester (15) IX Semester (25) Pre-Professional	V Semester: 20 VII Semester 20 IX Semester (20) Preprofessional along with GM
General Surgery	VI Semester (100) (GS-50, ENT-15*, Ortho-15*, Ophthal-20*) (IA will be conducted for 50 marks converted to 15, 15 and 20 respectively) VIII Semester (100) (GS-50, ENT-15*, Ortho-15*, Ophthal-20*)(IA Will be conducted for 100 marks converted to 15, 15 and 20 respectively) IX Semester (200) Pre-professional (GS-125, ENT-25, Ophthal-25, Ortho-25)	III Semester (15) IV Semester (15) VI Semester (35) VII Semester (35) VIII Semester (100) (GS-30, ENT-20, Ophthal-20, Ortho-20) IX Semester (200) Preprofessional Exam (GS-125, ENT-25, Ophthal-25, Ortho-25)
ENT	VI Semester (50 Converted to 15) VIII Semester (100 Converted to 15)	V Semester (15) VI Semester (25) VIII (Semester (25)

	IX Semester (25) Preprofessional Examination along with GS	IX Semester (25) Preprofessional Examination along with General Surgery
Ophthalmology	VI Semester (50 Converted to 15) VIII Semester (100 Converted to 15) IX Semester (25) Preprofessional Examination along with GS	V Semester (15) VI Semester (25) VIII (Semester (25) IX Semester (25) Preprofessional Examination along with General Surgery
Orthopaedics	VI semester (50) VIII Semester (100) IX Semester Pre-Professional Exam (25)	VI semester (20) to be converted to 10 VIII semester (20) to be converted to 10 IX semester (Preprofessional Exams) (20)
OBG	III Semester (100 Marks) V Semester (100 Marks) VI semester (100) VIII Semester (100) IX Pre-Professional (200)	III Semester (100) IV Semester (100) V semester (100) VII Semester (100) VIII Semester (100) IX Pre-Professional (200)
Paediatrics	VI Semester (50) VII Semester (50) VIII Semester (50) IX Semester (Pre-Professional Examination) (100)	III Semester (50) IV Semester (50) VI Semester (50) VII Semester (50) VIII Semester (50) IX Semester (Pre-Professional Examination) (100)
Community & Family Medicine	III Semester (20) IV Semester (20) VI Semester (20) VII Semester (20) VIII Semester (20) IX Semester (Preprofessional Examination) (200)	IV Semester (50) VII Semester (50) IX Semester (Pre-professional Examination) (200)

Distribution of Marks for III MBBS

Subject	Paper s	Theory Marks		Practical & Viva Voce		Marks
		Internal Assessment	Professional Examination	Internal Assessment	Professional Examination	
General Medicine	2	200 (150+25+25)	200 (150+25+25)	200 (160+20+20)	200 (160+20+20)	800
Dermatology		25	25	20	20	
Psychiatry		25	25	20	20	
General Surgery	2	200 (125+25+25+ 25)	200 (125+25+25+ 25)	200 (125+25+25+2 5)	200 (125+25+25+ 25)	800
Orthopedics		25	25	25	25	
ENT		25	25	25	25	
Ophthalmology		25	25	25	25	
OBG	2					
Pediatrics	1	100	100	100	100	400
Community & Family Medicine	2	200	200	200	200	800
	Total					

Theory Question pattern uniform throughout all 3 phases

Pre professional / Professional examination: Duration 3 hours each paper*

S. No.	Question type	Section A MCQs (1 mark)	Section B		Section C		Total
	Exams		LAQ (10marks)	SAQ (5marks)	LAQ (10 marks)	SAQ (5 marks)	
1	Paper 1	20x1	1x10	6x5	1x10	6x5	100
2	Paper 2	20x1	1x10	6x5	1x10	6x5	100
Grand Total							200

Except in General Medicine and General Surgery. Paper II will contain

Section A: 20 MCQ of 1 Mark each =20

Section B: 8 SAQ of 5 mark each=40

Section C: 8 SAQ of 5 Mark each. =40

General Medicine Paper 2 will have Psychiatry and Dermatology (5 MCQ and 4 SAQ each)

General Surgery Paper 2 will have Orthopaedics, ENT, Ophthalmology (5 MCQ and 4 SAQ each)

In case of Forensic Medicine & Toxicology and Paediatrics there is only one paper.

Practical		Marks *
Pre professional /Final professional Examination	Practical	80
	Viva	20
Total		100

- General Medicine, General Surgery OBG and CFM, Practical marks 160 and Viva 200 Marks.

Pattern of Summative Examination
(III MBBS Professional Examination)

GENERAL MEDICINE

Theory: (200)

Theory Paper 1. (100)

Section A (20 MCQ of 1 Mark each)

Section B & C [1 LAQ (10 Marks)+6 SAQ (5Marks)]

Theory Paper 2(100)

Section A (20 MCQ) of 1 Mark Each

General Medicine 10 MCQ, Dermatology 5 MCQ Psychiatry 5 MCQ)

Section B

General Medicine

8 SAQ- 5 Marks: General Medicine

Section C

4 SAQ 5 marks Psychiatry

4 SAQ 5 Marks Each: Dermatology

Practical: (200)

GENERAL MEDICINE –

160 MARKS

1 Long case of

60 Marks

2 short cases of 25 Marks each. total

50 marks

Viva Voce –

Drugs, Xray, Instruments, Scenarios (ECG) - 10 x 4= 40 marks

OSCE / Spot case discussion (General Medicine)

10 marks

PSYCHIATRY (OSCE) –

20 MARKS

DERMATOLOGY (OSCE)–

20 MARKS

GENERAL SURGERY

Theory

Theory Paper 1: (100)

(General Surgery, Head Face Neck, Breast, Endocrine, Trauma, Gastro-intestinal Tract, Hepato-biliary, Spleen, Genito-Urinary Tract)

Section A (20 MCQ of 1 Mark each)

Section B [1 LAQ (10 Marks)+6 SAQ(5Marks)]

Section C [1 LAQ (10 Marks)+6 SAQ(5Marks)]

Theory Paper 2:(100)

(Surgery and Allied: Paediatric Surgery, Neurosurgery, CVTS, Plastic Surgery, Radio-diagnosis, Dentistry, Anaesthesia; Orthopaedics, Ophthalmology, Otorhinolaryngology)

Section A (20 MCQ) of 1 Mark Each

General Surgery 5, Orthopaedics 5, ENT-5, Ophthalmology 5)

Section B

4 Short Answer Questions of 5 marks General Surgery & Allied (20 Marks)

4 Short Answer questions of 5 Marks each Orthopaedics (20 Marks)

Section C

4 SAQ 5 marks ENT=20 Marks

4 SAQ 5 Marks Ophthalmology= 20 Marks

Practical: (130+70=200)

1 Long Case: General Surgery (40)

1 Short Case: General Surgery (20)

1 Short Case: ENT (10), Ophthalmology (10), Orthopaedics (10)

8 OSCE Stations: 5- General Surgery(5x5=25), 1ENT (5),1Ophthalmology (5) and 1Orthopedics (5)

Viva Voce: (70)

General Surgery (40): Pathology (10) +Radiology (10) +Instruments (10) +Operative Surgery (10)

Ophthalmology (10): Pathology (2.5) +Radiology (2.5) +Instruments (2.5) +Operative Surgery (2.5)

ENT (10): Bone + Charts (2.5) +Radiology (2.5) +Instruments (2.5) +Operative Surgery (2.5)

Orthopaedics (10): Pathology (2.5) +Radiology (2.5) +Instruments (2.5) +Operative Surgery (2.5)

OBG

Theory Paper. (100 Marks)

Section A (20 MCQ of 1 Mark each)-20 Marks

Section B [1 LAQ (10 Marks+6 SAQ(5Marks))]-40 marks

Section C [1 LAQ (10 Marks+6 SAQ(5Marks))]- 40 Marks

Name of the Subject	Evaluation parameter	Maximum Marks	Passing minimum
Obstetrics & Gynecology	Written (2 Papers) Final Professional	200	100
	Practical Final Professional	200 (Obstetric long case- 80 Gynecology long case – 80) OSCE-20 marks Viva voce with four stations on pelvis, family planning, instruments and specimens-20 marks	100
	Internal Assessment Theory*	200	100
	Internal Assessment Practical*	200	100
	Overall (Total)	800	400

PAEDIATRICS

Theory Paper. (100 Marks)

Section A (20 MCQ of 1 Mark each)-20 Marks

Section B [1 LAQ (10 Marks+6 SAQ(5Marks))]-40 marks

Section C [1 LAQ (10 Marks+6 SAQ(5Marks))]- 40 Marks

Practical (100)

Long Case -30 Marks

Short Case – 15 marks

New Born -15 Marks

OSCE (5 Stations) -20 Marks

Viva Voce (4 stations) (Nutrition, Drugs and Vaccination, Instruments & Radiology-
20 Marks

COMMUNITY AND FAMILY MEDICINE

2 Theory Papers of 100 Marks each

Section A (20 MCQ of 1 Mark each)-20 Marks

Section B [1 LAQ (10 Marks+6 SAQ(5Marks))]-40 marks

Section C [1 LAQ (10 Marks+6 SAQ(5Marks))]- 40 Marks

Practical Examination:

Long Case 1x60, =60

Problem Solving Exercises 4x10, =40

OSPE 4x10,=40

Spotters 10x2 =20

Viva 40=40

Total= 200

Departments	General Medicine			General Surgery			OBG			Pediatrics			Community Medicine			ENT			Ophthalmology			Orthopaedics			Dermatology		Psychiatry				
Nature of Teaching Activity	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)	Labour Ward	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)	FHAP*	ECE**	Elective Postings	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)	IL (Hrs)	SGD (Hrs)	CP (wks)
1st Semester														20				20													
2nd Semester																															
3rd Semester	11		4	11		4					11		2	20	20													2	10		
4th Semester	17		4	17		4								40	20		6													2	
5th Semester	15			15																		2				2				1	
6th Semester	21	21	4	21	21	4						21	4	20	30		10			13	25	2	13	30	4	15	2	20	18	3	
7th Semester	34	34	2	34	34	2					25	2	20	30		4	0			12	15		17	12	3	20		2		4	
8th semester	21	84	6	21	84	6					63	4	40									3				20	4			4	3
9th Semester	11	33	4	11	33	4					21	2	20	20				2								25	0				

IL-Interactive Lectures, SGD- Small Group Discussions/Practicals/Tutorials etc CP- Clinical Postings

This list is exclusive of Integrated teachings, Self Directed Learning Hours

*FHAP: Family Health Advisory Program

**ECE: Early Clinical Exposure

**Department
of
General Medicine**

**Under Graduate
CURRICULUM**

**All India Institute of Medical Sciences
Madurai
Department of Medicine**

VISION

"Better healthcare for better lives"

By sustained effort and commitment to lifelong learning and discovery, through diversity of experience and opinion, the department of Medicine strives to uphold the public trust, to be a premier centre for quality medical education, to discover new knowledge through research, and to contribute importantly to the alleviation of suffering and to the cure of human disease.

MISSION

"To share learning and to encourage innovation within and across all departments"

The Department of Medicine strives to provide exceptional, compassionate, and equitable care to our patients with keen focus on care of each patient, as an individual with individual needs.

We are dedicated to the development of new knowledge through innovative and rigorous clinical research and in translating these discoveries into novel therapies.

We aspire to train and inspire the next generation of leaders in medicine through education that fosters creativity and a personal commitment to excellence, and that equips our students with laudable skills and perspective for a life's work in medicine.

We are committed to cultivating an inclusive, collaborative, and professional culture that respects individual differences and recognizes and rewards diverse talents, and helps each person reach their full potential.

We strive hard to improve the health of our community in all we do

GOAL

The aim of teaching the undergraduate student in Medicine is to pursue *an effective training that emphasizes on: the soundness of clinical methods for a diagnosis, the need to demonstrate respect to patients, to adhere to the highest degree of professional behavior, the importance of knowledge and skills in patient care and to be reliable, helpful and to be lifelong learners.*

Course outcomes Theory

The course includes basics of Medicine, symptomatology, Infectious Diseases and Systemic diseases.

OBJECTIVES

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

1. Elicit a detailed clinical history, perform thorough physical examination, elicit physical signs, correlate the clinical symptoms, physical signs to make a provisional anatomical, physiological, etiopathological diagnosis, develop differential diagnoses and request relevant laboratory investigations.
2. Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, life style diseases, tropical and environmental diseases.
3. Plan relevant diagnostic and investigative procedures and be able to interpret them.
4. Discuss and outline the principle involved in the management of the patient and prevention of common health problems.
5. Plan and write prescription for comprehensive treatment using the principles of rational drug therapy.
6. Provide first level care for common medical conditions and emergencies and recognize the timing and level of referral, if required.
7. Acquire the skills and competencies to perform minor procedures under supervision like – IV cannulation, insertion of nasogastric tube, urinary bladder catheterisation, doing an ECG etc.
8. Assist common bedside procedures like pleural aspiration, bone marrow aspiration and biopsy, lumbar puncture etc.
9. Resuscitate a patient efficiently by providing Basic Life Support in emergencies.
10. Develop empathy and interest in the care for all types of patients.

-
11. Learn patient safety and related topics. (Like Medication safety and Injection safety)
 12. Understand the hopes and fears of patients and know how to handle these emotions, both in him / her and others.
 13. Demonstrate skills in documentation of case details
 14. Understand patient rights and privileges including patient's right to information and right to seek a second opinion.
 15. Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities.
 16. Demonstrate communication skills in interviewing patients, providing explanations to patients and families about the management and prognosis, providing counselling and giving health education messages to patients, families and communities.
 17. Have an open attitude to the developments in Medicine so as to be aware of the need to keep abreast of new knowledge.
 18. Learn and adopt new ideas and new situations where resources may be limited.
 19. Understand the ethical and legal implications of his/her medical decisions.
 20. Should be able to work in a team and acquire knowledge through team work

PRACTICALS (CLINICS)

1. Take case history, analyze and give provisional diagnosis in a cardiac case.
2. Should be able to perform general examination including pulse, Blood pressure, JVP and understand their variations in Rheumatic, other valvular, coronary, hypertensive heart diseases and cardiomyopathies.
3. Should be able to perform methodical examination of CVS and plan workup and treatment
4. Should know the indications and order ECG in appropriate situations. Should be able to interpret ECG findings
5. Should be able to give intramuscular injections
6. Should be able to perform Basic life support and give CPR in life saving situations.
7. Should be able to counsel and communicate regarding lifestyle changes in CAD
8. Should be able to take history, do general examination and systemic examination in common infectious diseases. Should be able to order appropriate investigations to diagnose the etiology

9. Should be able to order and interpret sputum examination, peripheral smear for Malarial smear and Mantoux test. Should assist in collection of blood culture in suspected infectious diseases
10. Elicit history and do general and systemic examination in abdominal diseases.
11. Assist in Ascitic fluid tapping
12. Should know the indications and perform Lumbar puncture in simulated condition. Should be able to interpret CSF findings
13. Counsel for HIV testing and HIV prevention
14. Should be able to diagnose hypertension by BP measurement, perform systemic examination, investigate for secondary causes of hypertension and incorporate patient management preferences in management of hypertension
15. Demonstrate understanding the impact of hypertension on quality of life ,wellbeing, work and family
16. Discuss case of anaemia, examine for pallor, lymph nodes, liver and spleen to find etiology of anaemia and communicate diagnosis and appropriate treatment of anaemia
17. Assist in blood transfusion
18. Should be able to take medical history, perform examination in CKD, calculate FeNa, eGFR and interpret ECG changes in hypo and hyperkalemia
19. Should be able to elicit medical history and risk factors for Diabetes Mellitus. Perform foot examination and screen for complications of DM.
20. Perform capillary blood glucose test and urinary ketone estimation by dipstick. Should be able to demonstrate correct technique of insulin administration and self-monitoring of blood glucose.
21. Elicit, document and present history to diagnose thyroid disorders and perform examination that includes palpation of Thyroid gland and demonstrate signs of hypo and hyperthyroidism
22. Interpret Thyroid function test and write and communicate to patient prescription for Thyroxin based on age, sex, clinical and biochemical status.
23. Perform, document and demonstrate physical examination in an obese patient, calculate BMI and measurement of abdominal obesity, signs of secondary causes and co morbidities
24. Order and interpret diagnostic tests including lipid profile and counsel about diet and exercise in weight loss

25. Elicit history and perform examination to elicit causes for upper GI bleeding, observe cross matching and blood component transfusion and counsel about diagnosis and treatment.
26. Elicit history and perform examination in a case of Acute diarrheal disease. Demonstrate the utility of stool microscopy and hanging drop preparation in identifying the etiology. Counsel patients about importance of hydration and ORS in management. Should be able to treat severe dehydration by IV fluids.
27. Elicit Medical history for evaluation of causes of headache; perform neurological examination and present differential diagnosis based on clinical features. Choose and interpret diagnostic testing including imaging
28. Perform, demonstrate and document physical examination includes detailed neurological examination in a case of Cerebrovascular episode
29. Elicit history and perform examination in a case of myelopathy and peripheral neuropathy. Distinguish the lesion based on upper motor neuron vs lower motor neuron, side, site and most probable nature of lesion
30. Elicit history and perform examination to differentiate between ischemic and hemorrhagic stroke. Choose and interpret appropriate investigation in young patients with CVA. Counsel patient of CVA about diagnosis and treatment
31. Elicit history and perform neurological examination in speech disorders and cranial nerve involvement
32. Elicit history and perform neurological examination in a case of movement disorders. Demonstration of signs in a case of Parkinson's disease
33. Elicit history and perform clinical examination in a case of Snake bite. Diagnostic tests (WBCT) and demonstration of first aid (on Mannequin) in snake bite. Counseling family members of a poisoning patient.
34. Perform multidimensional geriatric assessment that includes medical, psychosocial and functional components
35. Elicit, document & present an appropriate medical history, perform systematic respiratory system examination & analyze to diagnose case of pulmonary Tb
36. Elicit history, document and present the detailed respiratory examination to identify pleural involvement and differentiate between tubercular and non-tubercular pleural effusions

37. Decide the indications, perform and interpret PPD (Mantoux test) and its clinical significance
38. Assist in performance and interpret the results of Pleural fluid aspiration
39. Prescribe an appropriate Anti-tubercular regimen based on location of disease, smear positivity and co morbidities, based on current national guidelines, including DOTS.
40. Define criteria for cure of tuberculosis, describe and recognize features of drug resistant tuberculosis, prevention and therapeutic regimens
41. Educate Health care workers on national Program of Tuberculosis and administering and monitoring DOTS program
42. Elicit, document and present a medical history that will differentiate the etiologies of obstructive airways disease, severity and precipitants
43. Perform a systematic examination that establishes the diagnosis and severity of COPD with complications of consolidation, pleural effusion or pneumothorax
44. Describe, discuss and interpret pulmonary function tests
45. Perform and interpret Peak expiratory flow rate
46. Enumerate the indications for and interpret the results of Pulse oximetry, ABG and Chest radiograph
47. Develop a therapeutic plan indicating use of bronchodilators and inhaled corticosteroids
48. Discuss and Counsel patients on smoking cessation and demonstrate correct use of inhalers

LIST OF ESSENTIAL PRACTICAL SKILLS

1. Art of history taking
2. Arriving at a logical provisional diagnosis on history & Listing differential diagnosis
3. Anthropometry: Height, weight, BMI, WHR and Vital signs measurement
4. Systematic general examination
5. Examination of each system in detail based on provisional diagnosis, in proper format
6. Eliciting and demonstration of signs on systemic examination
7. Formulation of relevant investigation protocol for common medical disorders and emergencies

8. Preparation of treatment algorithm for common medical disorders and emergencies.
9. Formulating a treatment plan and writing a proper prescription for the given case
10. Planning follow up of the patients
11. Counseling the patient and his relatives about the disease, treatment and prognosis
12. Writing a case record
13. Infection Control practices and use of Personal Protective Equipment
14. Informed Consent for a procedure
15. Techniques of asepsis
16. Principles of First Aid
17. Principles of Adult immunization
18. Administration of Intramuscular injections
19. IV access, blood sampling and monitoring
20. Start and monitor blood transfusion
21. Basic Life support
22. Management of common medical emergencies like Acute myocardial infarction, stroke, snake bite etc
23. Management of common poisonings like organophosphorus compound poisoning
24. Order, perform and interpret ECG
25. Estimation of capillary glucose levels by glucometer
26. Estimation of urinary ketones by dipstick
27. Nasogastric tube insertion
28. Estimation of peak flow rate by peak flowmeter
29. Nebulization therapy
30. Peritoneal and pleural tapping
31. Lumbar puncture
32. Bone Marrow aspiration

Integration The teaching of theory in Medicine would be done in an integrated manner with other disciplines, such as Anatomy, Physiology, Biochemistry, Pathology and Microbiology, Community Medicine, Surgery, Pediatrics, Orthopedics, and other super specialties whenever possible.

COURSE CONTENT

General

- The 'art' and 'science' of Medicine
- Principles of medical ethics
- Clinical diagnostic reasoning
- Principles of prevention of disease
- Clinical genetics - common types, clinical presentation, investigation and prevention of genetic diseases and genetic counselling
- Medical disorders during pregnancy
- Principles of Geriatric Medicine
 - Normal ageing
 - Clinical assessment of frail elderly,
 - Decisions about investigations and rehabilitation
 - Major manifestations of disease in elderly
- Care of terminally ill/dying patient

Clinical Pharmacology

- Principles of drug therapy
- Adverse drug reactions
- Drug interactions
- Monitoring drug therapy
- Writing a drug prescription

Nutritional and metabolic disorders

- Nutritional assessment & needs
- Nutritional & metabolic disorders
 - Protein energy malnutrition
 - Obesity
- Vitamin and mineral deficiency & excess
- Diet therapy including parenteral nutrition therapy

Water, electrolyte and acid-base imbalance

- Water and electrolyte physiology
- Acid-base disorders
- Fluid and electrolyte disturbances

Critical care Medicine

- Physiology of the critically ill patient
- Major manifestations of critical illness
- Circulatory failure: Shock – Types, Diagnosis and Treatment
- Sepsis and septicemic shock,
- Respiratory failure
- Renal failure
- Coma
- Disseminated intravascular coagulation
- General principles of critical care management
- Scoring systems in critical care

Pain management and palliative care

- General principles of pain
- Assessment and treatment of pain
- Palliative care

Poisonings

- General approach to the poisoned patient
- Poisoning by specific pharmaceutical agents
- Drugs of misuse
- Chemicals and pesticides
- Organophosphorus compound poisoning
- Snake bite and Envenomation,
- Other bites and stings - scorpion, spider

Specific environmental and occupational hazards

- Heatstroke and hypothermia
- Drowning and near drowning
- Electrical injuries
- Radiation injury
- Heavy metal poisoning

Immune response and Infections

- Basic considerations
 - Patterns of infection
 - Laboratory diagnosis of infections
 - Principles of immunization and vaccine use
- Clinical syndromes
- The febrile patient
- Fever and rash
- Fever of unknown origin
- Infective endocarditis
- Acute infectious diarrhoeal diseases and food poisoning
- Sexually transmitted diseases - overview & clinical approach
- Infections of skin, muscle & soft tissues
- Osteomyelitis
- Hospital acquired infections
- Infections in immuno-compromised hosts

Specific Infections - Epidemiology, clinical features, laboratory diagnosis, treatment and prevention of:

- Protozoal infections
 - Amebiasis
 - Malaria
 - Leishmaniasis,
 - Toxoplasmosis,
 - Giardiasis
 - Trichomoniasis
 - Trypanosomiasis

- Bacterial infections
 - Streptococcal infections
 - Pneumococcal infections
 - Staphylococcal infections
 - Meningococcal infections
 - Gonococcal infections
 - Legionella infections
 - Pertussis and Diphtheria
 - Tetanus
 - Botulism
 - Gas gangrene, other clostridial infections
 - Cholera
 - Salmonellosis - Typhoid and paratyphoid fevers
 - Shigellosis and bacillary dysentery
 - Brucellosis
 - Plague
 - Donovanosis (Granuloma inguinale)
 - Helicobacter Pylori
 - Infections due to pseudomonas & other gram - negative bacteria
 - Anaerobic infections
- Mycobacterial diseases
 - Tuberculosis
 - Leprosy
- Viral infections
 - Common exanthemata
 - Measles, Mumps, Rubella, Varicella
 - Common viral respiratory infections,
 - Human immunodeficiency virus (HIV)
 - Viral gastroenteritis,
 - Dengue fever,
 - Rabies
- Rickettsia, Mycoplasma & Chlamydial diseases,
- Fungal infections

- Candidiasis,
- Aspergillosis,
- Histoplasmosis,
- Cryptococcosis,
- Mucormycosis
- Pneumocystis carini
- Helminthic infections,
 - Nematodes (Tissue, Intestinal)
 - Cestodes (Tissue, Intestinal)

Systemic diseases

Cardiovascular system

- Clinical examination of the cardiovascular system
- Functional Anatomy, Physiology & Investigations
- Major manifestations of cardiovascular disease
 - Chest pain
 - Breathlessness
 - Palpitation
 - Acute circulatory failure (cardiogenic shock)
 - Heart Failure
 - Hypertension
 - Cardiac arrest and sudden cardiac death
 - Abnormal heart sounds and murmurs
 - Atrial fibrillation
- Disorders of heart rate, rhythm and conduction
- Congestive cardiac failure
- Rheumatic fever
- Valvular heart disease
- Ischaemic heart disease
- Congenital heart disease in the adult
- Cor pulmonale
- Infective Endocarditis
- Diseases of Aorta
- Peripheral vascular diseases

- Atherosclerosis,
- Pericardial diseases
- Cardiomyopathies – Dilated and Restrictive cardiomyopathy
- Myocarditis

Respiratory System

- Clinical examination of the respiratory system
- Functional Anatomy, Physiology Investigations
- Major manifestations of lung disease
 - Cough
 - Dyspnoea
 - Chest pain
 - Haemoptysis
 - The solitary radiographic pulmonary lesion
 - Respiratory failure
- Upper and lower respiratory infections
- Pneumonias
- Bronchial Asthma
- Chronic obstructive pulmonary disease
- Pulmonary tuberculosis
- Suppurative lung diseases
 - Bronchiectasis
 - Lung abscess
 - Pleural effusion and empyema
- Occupational lung diseases
- Interstitial and infiltrative lung diseases
- Pulmonary vascular diseases
 - Pulmonary Hypertension
 - Pulmonary thromboembolism
- Obstructive sleep apnoea

- Adult respiratory distress syndrome
- Mechanical Ventilation

- Bronchogenic carcinoma
- Pleural effusion
- Pneumothorax
- Diseases of the Mediastinum, diaphragm and chest wall

Kidney and genitourinary system

- Clinical examination of the kidney and genitourinary system
- Functional anatomy, physiology and investigations
- Major manifestations of renal and urinary tract disease
 - Dysuria, pyuria, urethral symptoms
 - Disorders of urine volume
 - Haematuria
 - Proteinuria
 - Oedema
 - Incontinence
 - Obstruction of the urinary tract
- Acute and chronic renal failure
- Infections of the kidney and urinary tract
- Congenital abnormalities of the kidneys and urinary system
- Acute & Chronic Glomerulonephritis
- Tubulo-interstitial diseases
- Renal involvement in systemic disorders
- Drugs and the kidney
- Renal vascular diseases
- Urinary tract calculi and nephrocalcinosis
- Tumours of the kidney and genitourinary tract
- Renal replacement therapy

Gastrointestinal tract

- Clinical examination of the abdomen
- Functional anatomy, physiology and investigations particularly role of imaging, endoscopy and tests of function
- Major manifestations of gastrointestinal disease

- Abdominal pain (acute and chronic)
- Dysphagia
- Dyspepsia
- Vomiting
- Constipation
- Diarrhoea
- Abdominal lump
- Weight loss
- Gastrointestinal bleeding - upper and lower
- Approach to the patient with gastrointestinal disease
- Ascitis
- Diseases of the mouth and salivary glands - oral ulcers, candidiasis, parotitis
- Diseases of the oesophagus - GERD, other motility disorders, oesophagitis, carcinoma oesophagus
- Diseases of the stomach and duodenum - gastritis, peptic ulcer disease, tumors of stomach
- Diseases of the small intestine
 - Acute gastroenteritis & food poisoning
 - Intestinal tuberculosis
 - Inflammatory bowel disease
 - Malabsorption syndrome
 - Tumors of small intestine
 - Acute, sub-acute and chronic intestinal obstruction
- Disorders of the colon and rectum
 - Bacillary dysentery
 - Amoebic colitis
 - Ulcerative colitis
 - Tumors of the colon & rectum
 - Irritable bowel disease
- Abdominal tuberculosis
 - Peritoneal
 - Nodal
 - Gastrointestinal

- Ischaemic gut injury
- Diseases of the peritoneal cavity
 - Acute and chronic peritonitis
 - Ascites
 - Peritoneal carcinomatosis

Diseases of the pancreas

- Acute and chronic pancreatitis
- Tumors of pancreas

Liver and Biliary tract disease

- Clinical examination of the abdomen for liver and biliary disease
- Functional anatomy, physiology and investigations of hepatobiliary disease
- Major manifestations of liver disease
 - 'Asymptomatic' abnormal liver function tests
 - Jaundice
 - Acute (fulminant) hepatic failure
 - Portal hypertension and ascites
 - Hepatic (portosystemic) encephalopathy
 - Hepatorenal failure
- Liver abscess - amoebic & pyogenic
- Viral hepatitis - acute and chronic
- Alcoholic liver disease
- Cirrhosis of liver and chronic liver disease
- Acute Fulminant hepatic failure
- Drugs, toxins and liver
- Fatty liver and non-alcoholic steatohepatitis
- Infiltrative diseases of liver
 - Wilson's disease
 - Hemochromatosis
- Tumors of the liver
- Gallbladder and biliary tract diseases

- Functional anatomy
- Acute and chronic 'cholecystitis'

- Cholelithiasis
- Tumors of gall bladder and bile ducts

Endocrinology and Metabolism

Diabetes mellitus

- Clinical examination of the patient with diabetes
- Epidemiology
- Physiology, pathophysiology and investigations
- Aetiology and Pathogenesis
- Major manifestations of disease
 - Hyperglycaemia
 - Acute metabolic complications
 - Diabetic ketoacidosis
 - Hyperglycemic non-ketotic coma
 - Hypoglycemia
 - End organ damage
- Management of diabetes
- Long-term complications (micro and macrovascular)
- Long-term supervision
- Special problems in management
- Prospects in diabetes mellitus

Thyroid gland

- Clinical examination of thyroid disease
- Functional anatomy, physiology and investigations
- Interpretation of thyroid function test results
- Major manifestations of thyroid disease
 - Hyperthyroidism
 - Hypothyroidism

The parathyroid glands

- Major manifestations of diseases of the parathyroid glands
 - Hypercalcemia
 - Hypocalcemia

The reproductive system

- Major manifestations of reproductive disease
 - Male hypogonadism
 - Gynaecomastia
 - Impotence
 - Short stature and delayed puberty
 - Cryptorchidism
 - Hirsutism
 - Secondary amenorrhoea
 - Infertility

The adrenal glands

- Major manifestations of adrenal disease
 - The 'Cushingoid' patient
 - Adrenal insufficiency
 - Pheochromocytoma

The endocrine pancreas and gastrointestinal tract

- Major manifestations of disease of the endocrine pancreas
- Spontaneous hypoglycemia
 - Disorders affecting multiple endocrine system

The hypothalamus and the pituitary gland

- Major manifestations of hypothalamic and pituitary disease.
 - Hypopituitarism
 - Visual field defects
 - Galactorrhea
 - Acromegaly and Gigantism

Hematological disorders

- Clinical examination in blood disorders
- Functional anatomy, physiology and investigations

- Major manifestations of hematological diseases
 - Nutritional anaemias
 - Haemolytic Anaemias – Sickle cell disease, Aplastic Anaemias
 - Pancytopenia
 - Thrombocytopenia
- Approach to a patient with Splenomegaly
- Haematological Malignancies
 - Acute Leukemias Chronic Leukemias
 - Lymphomas – Hodgkins Lymphoma B cell Lymphomas
Myeloproliferative Disorders
- Thrombocytopenia
- Bleeding disorders
- Disorders of coagulation and venous thrombosis
- Blood products and transfusion
- Bone marrow transplantation

Disorders of the immune system, connective tissue and joints

- Introduction to the immune system and autoimmunity
- Primary immune deficiency diseases
- HIV, AIDS and related disorders
- Major manifestations of musculoskeletal disease
 - Joint pains
 - Bone pain
 - Muscle pain and weakness
 - Regional periarticular pain
 - Back and neck pain
- Approach to articular and musculoskeletal disorders
- Inflammatory joint disease
- Infectious arthritis
- Inflammatory muscle disease
- Osteoarthritis
- Systemic connective tissue diseases - SLE, RA, PSS

- Vasculitides
- Ankylosing spondylitis, reactive arthritis and undifferentiated spondyloarthropathy
- Sarcoidosis
- Amyloidosis
- Musculoskeletal manifestations of disease in other systems
- Fibromyalgia

- Diseases of bone
- Osteoporosis

Neurological diseases

- Clinical examination of nervous system
- Functional anatomy, physiology and investigations
- Major manifestations of nervous system disease
 - Headache and facial pain
 - Raised intracranial tension
 - Faintness, dizziness, syncope & vertigo
 - Sleep disorders
 - Disorders of movement
 - Ataxia
 - Sensory disturbances (numbness, tingling and sensory loss)
 - Acute confusional states
 - Coma and brain death
 - Aphasias and other focal cerebral disorders
 - Speech, swallowing and brain-stem disturbance
 - Visual disturbances
 - Sphincter disturbances
- Investigations in a case of Nervous system disorder
- Migraine and cluster headaches
- Seizures and epilepsy
- Cerebrovascular disease
- Dementias
- Acute and chronic meningitis

- Viral encephalitis
- Diseases of cranial nerves
- Intracranial tumours
- Raised intracranial tension
- Coma and brain death
- Diseases of spinal cord
- Multiple sclerosis and other demyelinating diseases
- Parkinson's disease and other extrapyramidal disorders
- Cerebellar disorders
- Motor neuron disease
- Peripheral neuropathy
- Neurological manifestations of system diseases
- Nutritional and metabolic diseases of the nervous system
- Myasthenia gravis and other diseases of neuromuscular junction
- Diseases of muscle

Broad Plan and Teaching Learning Methods

Term	Systems	Didactic Lectures	Clinics	Integrated Teaching hours	SDL	Tutorials
Third	General Medicine fundamentals	08	2hours daily for 4 days a week	03 Micro & Patho	06	None
	Symptomatology- all systems	06				
	Infectious Diseases- Bacterial and Parasitic	16				
Fourth	Infectious Diseases –Viral, fungal and Other Infections	8	3 hours daily from Monday	02 Micro	05	None

	Environmental Diseases	4	to Friday			
	Posionings	06				
Fifth	Haematology & transfusion medicine	10	3 hours daily from Monday to Saturday	04 Patho & Surgery	06	None
	Nutrition	5				
	Gastrointestinal Diseases	07				
	Liver and Pancreatic diseases	09				
Sixth	Cardiovascular Diseases	16	3 hours daily from Monday to Saturday	None	05	None
	Respiratory system diseases	16				
Seventh	Kidney and Genitourinary System	14	3 hours daily from Monday to Saturday	02 Surgery Physiology	04	None
	Endocrinology and Metabolism	22				
Eighth	Rheumatology, Immunological disorders	13	3 hours daily from Monday to Saturday	02 Micro & Ortho Dermatology	03	None
	Bone and Musculoskeletal Disorders	05				
	Critical Care Medicine	08				
	Tuberculosis	05				

Ninth	Neurology	22	3 hours daily from Monday to Saturday	02 Anatomy & Radiology & Psychiatry	04	15

Lectures

III Term

Total teaching hours = 30 hours

General Medicine Topics & Symptomatology

SN	Topic
1	Approach to a patient
2	Art and Science of History taking
3	Symptomatology of CVS
4	Symptomatology of RS
5	Symptomatology of GIT (including pancreatic diseases)
6	Symptomatology of Hepatobiliary diseases
7	Symptomatology of renal diseases
8	Symptomatology of CNS
9	Investigations and clinical diagnostic reasoning
10	Clinical Genetics
11	Principles of Geriatric Medicine
12	Approach to a critically ill patient
13	Care of terminally ill and dying patient
14	Clinical Pharmacology and writing a prescription

Infectious diseases – Part I (Bacterial & Parasitic Infections)

Sr No	Topic
1	Approach to patient with infectious disease
2	Fever & FUO
3	Investigations in infections
4	Principles of antibacterial therapy
5	Streptococcal Infections
7	Staphylococcal Infections
8	Pneumococcal& Meningococcal infections
9	Diphtheria
10	Tetanus
11	Helminthic Infections
12	Typhoid & Paratyphoid
13	Cholera, Shigellosis and Acute Bacillary dysentery
14	Pseudomonas and other gram-negative Infections
15	Malaria
16	Amoebiasis

IV Term

Total Teaching hours = 18 hours

Infectious diseases – Part II (Viral and Other infections)

Sr No	Topic
1	HIV infection -I
2	HIV infection – treatment and PEP
3	Dengue & Viral haemorrhagic & Tropical fevers
4	Rickettsia pox including scrub typhus
5	Poliomyelitis & Rabies
6	Measles Mumps Rubella
7	Varicella Infections
8	Fungal infections

Environmental Diseases

- 1 Heat Hyperpyrexia and Heat Stroke, hypothermia and Frost bite
- 2 Radiation, Electric Shock and Lightning Injury
- 3 Environmental and Occupational Diseases
- 4 High Altitude Medicine

Poisoning

Sr No	Topic
1	General principles of Poisonings & Aluminium Phosphide poisoning
2	Organophosphorus Poisoning
3	Corrosive Poisoning, Plant poisoning
4	Heavy Metal Poisoning

5	Snake Bite
6	Scorpion bite, Bee sting

V Term

Total teaching Hours = 31 hours

Haematology

Sr. No.	Topic
1	Approach to a patient with haematological disorder
2	Iron deficiency Anaemia
3	Haemolytic Anaemias
4	Sickle Cell Disease and other haemoglobinopathies
5	Megaloblastic Anaemias
7	Aplastic Anaemias and Myelodysplastic Syndromes
8	Acute leukaemia
9	Chronic leukaemia
10	Lymphomas
11	Approach to a patient with Bleeding disorder
12	Thrombocytopenia
13	Coagulation Disorders
14	Blood transfusion
15	Bone Marrow and Stem cell Transplantation

Gastrointestinal System

Sr. No.	Topic
1.	Approach to a patient
2.	Diseases of Oesophagus
3.	GERD and H. Pylori infection
4.	Peptic ulcer disease
5.	Inflammatory bowel disease
6.	Malabsorption syndrome
7.	Irritable bowel syndrome

Hepatobiliary system and Pancreatic disease

HEPATOBIILIARY	
1.	Approach to the patient with liver disease
2.	Acute viral hepatitis
3.	Chronic hepatitis
4.	Cirrhosis of liver
5.	Wilson's disease and Hemochromatosis
6.	Acute and chronic cholecystitis
7.	Liver transplantation - medical aspects
Pancreas	
1.	Approach to a patient with pancreatic disease
2.	Acute and chronic pancreatitis

VI Term

Total teaching Hours = 32 hours

CARDIOVASCULAR SYSTEM

Sr. No.	Topic
1.	Approach to patient with cardiac disease
2.	Heart failure
3.	Sudden cardiac death
4.	Congenital heart diseases in adults
5.	Systemic hypertension
6.	Coronary artery disease – Risk Factors and Metabolic syndrome
7.	Coronary artery disease - Acute myocardial infarction
8.	Coronary artery disease – Chronic stable and unstable angina
9.	Acute rheumatic fever
10.	Valvular heart disease – Mitral valve disease
11.	Valvular heart disease – aortic valve disease
12.	Infective endocarditis
13.	Cardiomyopathies – Hypertrophic, Dilated, Arrhythmogenic, Obliterative & Restrictive cardiomyopathy
14.	Myocarditis
15.	Pericardial disease
16.	Diseases of Aorta and PVD

RESPIRATORY SYSTEM

1.	Approach to a patient with respiratory disease
2.	Investigations in a respiratory case
3.	Pneumonias
4.	Lung abscess and Bronchiectasis
5.	Bronchial Asthma
6.	Chronic Obstructive Airways disease
7.	Occupational lung diseases
8.	Interstitial lung disease
9.	Pulmonary hypertension
10.	Pulmonary Embolism
11.	Obstructive Sleep apnoea
12.	Adult respiratory Distress syndrome
13.	Bronchogenic Carcinoma
14.	Pleural effusion
15.	Pneumothorax
16.	Diseases of Mediastinum

VII TERM

Total teaching hours = 36 hours Kidney and genitourinary system

Sr. No.	Topic
1.	Approach to a patient with kidney disease
2.	Adaptation and Pathophysiology of Renal injury including RA system
3.	Acute Renal failure
4.	Chronic renal failure
5.	Renal replacement therapy
6.	Glomerular diseases (Acute and Chronic Glomerulonephritis)
7.	Tubulointerstitial diseases
8.	Nephrotic Syndrome
9.	Polycystic Kidney disease
10.	Renal involvement in systemic diseases and Nephrotoxicity of drugs
11.	Renovascular diseases
12.	Infections of the kidney and urinary tract
13.	Nephrolithiasis and Urinary tract obstruction
14.	Renal transplantation

Endocrinology and Metabolism

Sr. No.	Topic
1.	Approach to a patient with endocrinological disorder
2.	Mechanisms of hormone action and regulation
3.	Hypopituitarism
4.	Acromegaly and Gigantism

5.	Diabetes insipidus and SIADH
6.	Clinical Manifestations of Thyroid disease and interpretation of thyroid function tests
7.	Hypothyroidism
8.	Thyrotoxicosis
9.	Evaluation of Thyroid nodule
10.	Parathyroid diseases
11.	Adrenal insufficiency
12.	Cushing's disease
13.	Pheochromocytoma
14.	Diabetes mellitus – I
15.	Diabetes Mellitus – II
16.	Acute complications of Diabetes Mellitus
17.	Chronic Complications of Diabetes mellitus
18.	Treatment of Diabetes Mellitus
19.	Male Hypogonadism and Gynaecomastia
20.	Hirsutism and secondary Amenorrhoea
21.	Obesity
22.	Hyperlipidemias

VIII -Term

Total Teaching Hours = 31 hours Immunological disorders

Sr. No.	Topic
1.	The Immune System and Major HLA
2.	Primary immune Deficiency diseases
3.	Allergies, anaphylaxis and Systemic Mastocytosis
4.	Approach to a patient with Autoimmune disorder
5.	Systemic Lupus Erythematosus
6.	Rheumatoid Arthritis
7.	Scleroderma and related disorders
8.	Sjogren's syndrome
9.	Spondyloarthropathies including Ankylosing Spondilitis
10.	Vasculitis Syndromes
11.	Polymyositis and Dermatomyositis
12.	Sarcoidosis
13.	Amyloidosis

Musculoskeletal and Joint Disorders

Sr. No.	Topic
1.	Approach to articular and Musculoskeletal disorders
2.	Osteoarthritis
3.	Gout and other Crystallopathies
4.	Fibromyalgia
5.	Osteoporosis

Critical Care Medicine

Sr. No.	Topic
1.	Approach to a critically ill patient
2.	Hypovolemic and Septic Shock
3.	Cardiogenic Shock
4.	Coma
5.	Oncologic emergencies
6.	Basic and Advance cardiac Life support
7.	Mechanical ventilation - Basics
8.	Life support and interventions

Tuberculosis

Sr. No.	Topic
1.	Epidemiology, Pathogenesis and Risk Factors for Tuberculosis
2.	Clinical manifestations of Pulmonary and extrapulmonary tuberculosis
3.	Diagnosis of Tuberculosis
4.	Treatment of tuberculosis – RNTCP and DOTS
5.	Multidrug resistant tuberculosis



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

IX TERM

Total Teaching hours = 22 hours

Neurology

Sr. No.	Topic
1.	Approach to a patient with neurological disorder
2.	Examination and Investigations in a neurology case
3.	Headache and facial Pain
4.	Coma and Brain death
5.	Syncope and Vertigo
6.	Epilepsy
7.	Cerebrovascular diseases – I
8.	Cerebrovascular diseases – II
9.	Acute and Chronic Meningitis
10.	Brain abscess
11.	Viral Encephalitis
12.	Intracranial tumours
13.	Dementias and Alzheimer's disease
14.	Parkinsons disease and other extrapyramidal disorders
15.	Multiple sclerosis
16.	Ataxia and Cerebellar Disorders
17.	Disorders of spinal cord – Non compressive Myelopathies
18.	Disorders of spinal cord –Compressive Myelopathies
19.	Amyotrophic Lateral sclerosis
20.	Nutritional and Metabolic disorders of CNS

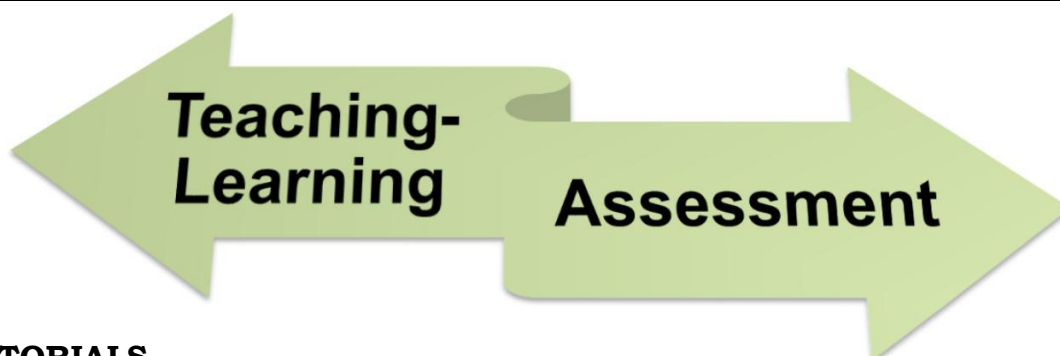


ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

21.	Myasthenia Gravis
22.	Peripheral Neuropathy



TUTORIALS

IX Term

Total teaching hours – 15

SN	Topic	No. of hours
1	Emergencies	3
2	ECGs	4
3	Xrays	2
4	Drugs	3
5	Instruments	1
6	Prescription writing	2



Curriculum:

Teaching-Learning:

- Didactic Lectures
- Tutorials
- Seminars
- Integrated Teaching
- Self-directed Learning
- Clinical case Discussions
- Problem based Learning
- Group Discussions



Topics covered in AETCOM Sessions

- Informed Consenting Process
- Communication in an emotionally distressed patient

Topics covered for integrated teaching

- **Anatomy:** Anatomy of lung, brain, breast, cervix and rectum and its applied aspect in medicine.
- **Physiology:** Physiology, epidemiology, pathogenesis, clinical evolution of heart failure, acute myocardial infarction, liver diseases and hyperbilirubinemia, hypertension, diabetes mellitus, thyroid dysfunction, GI bleeding, CVA, mineral and electrolyte balance, nutritional disorders.
- **Biochemistry:** Understanding lipid cycle and dyslipidemia, aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies, interpretation of lipid profile, capillary blood glucose test, urine ketone,
- **Pathology:** Epidemiology, etiopathogenesis clinical evolution of heart failure, acute myocardial infarction, pneumonia, liver diseases, HIV related malignancy and skin problems, autoimmune diseases, hypertension, anemia, acute and chronic renal failure, diabetes mellitus, obesity, common malignancies, GI bleeding, headache, infectious diseases and CVA. Interpretation of laboratory tests in above conditions. Perform and interpret a capillary blood glucose test, urine ketone, bone marrow aspiration biopsy and lumbar puncture
- **Microbiology:** Etiology, pathology, clinical features and investigation of infective endocarditis, pneumonia, acute rheumatic fever, fever and febrile illness, viral hepatitis, HIV, diarrheal diseases, cancer, meningitis. Interpretation of diagnostic laboratory tests in above conditions. Pneumococcal, influenza and hepatitis vaccines. Perform and interpretation of a sputum gram stain, sputum AFB, malarial smear, PPD, lumbar puncture, collecting specimen for blood culture, collection of pus culture, Identification of vibrio cholera in a hanging drop specimen.
- **Pharmacology:** Treatment of heart failure, acute myocardial infarction, acute coronary syndrome dyslipidemia, Arrhythmia, liver disease, GI bleed, diarrheal disorders, epilepsy, stroke, Parkinsonism, Alzheimer's disease, Antiplatelet, Anticoagulants, Fibrinolytics, Diabetes, hypertension, obesity, anemia, Thyroid disorder, antimicrobial therapy, antimalarial drugs, HAART, DMARDS, chemoradiotherapy, envenomation and poisoning



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

- **Community medicine:** Epidemiology and risk factors for atherosclerosis, ischemic heart disease, obesity. Etiopathogenesis, clinical features and investigation of fever and febrile illness. Prevention programs for anaemia and iodine deficiency.
- **Forensic medicine:** Etiology, clinical features management and legal aspects of poisoning and envenomation. Observe and describe the functions and role of a poison centre
- **Radiodiagnosis:** interpretation of chest x-ray, CT chest, CT brain, MRI brain, ultrasound, ERCP and MRCP
- **Surgery:** Pathophysiology, clinical evolution, complications and management of valvular heart disease, cirrhosis (including liver transplantation), portal hypertension, obesity, cancer, GI bleed, cholelithiasis and cholecystitis haemorrhagic stroke, movement disorder, primary hyperparathyroidism. History and examination for patient with thyroid disorder and malignancy. Perform thyroid examination, breast exam, rectal examination and cervical examination and pap smear. Discuss ERCP, MRCP, CT scan.
- **Psychiatry:** Consultation and counselling in geriatric population, poisoning and overdose, migraine and tension headache
- **Ophthalmology:** Management of visual loss
- **OBG:** Medico-legal, sociocultural, economic and ethical issues in vitro fertilization donor insemination and surrogate motherhood

Topics allotted for Self-Learning:

- Clinical Pharmacology, General Concepts, Medical ethics, Pain & palliative care, Geriatrics, Genetics, Patient safety related topics

Record / log book maintenance:

Students will be provided with Medicine record / log book wherein they are instructed to fill up the case records during the clinical postings and get it signed from the respective unit faculties / heads on regular basis.



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

	Professional Year	Number of Lectures (Hrs)
Didactic Lectures:	3rd	11
	4th	17
	5th	15
	6th	21
	7th	34
	8th	21
	9th	11

Semester	Professional Year	Number of Sessions	
6th	3rd (I)	21	
7th	3rd (II)	34	
8th		84	130
9th		33	Tutorials
Seminars / Integrated			
Teaching:			



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

Semester		Professional Year	Number of Weeks/ Hours	
3rd		2 nd	4	60hrs
4th			4	60hrs
5th		3 rd (I)		
6th			4	72hrs
7th		3 rd (II)	2	36hrs
8th			6	108hrs
9th			4	72hrs
172				

Clinical Postings:



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Department of General Medicine

Undergraduate Curriculum

TOTAL WEEKS - 24
HOURS - 336

TOTAL

TEACHING HOURS IN MEDICINE:

Didactic Lectures : 130hours

Tutorials / Seminars / Integrated Teaching : 172
hours

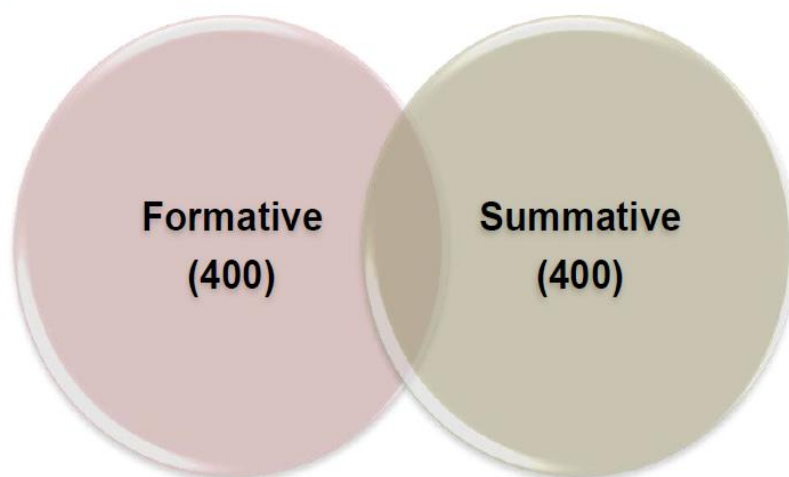
Clinical Postings : 336 hours

Total Teaching Hours : 638 hours

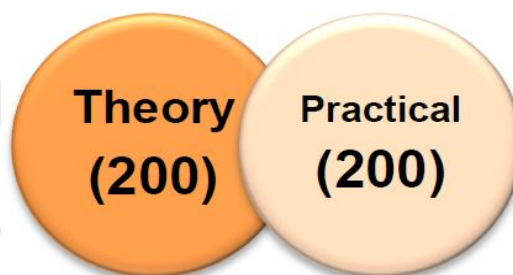


GENERAL MEDICINE

Assessment



**Formative
(400 marks)**





III Semester

Practical Exam:

End of posting exam of 30 marks after clinical posting.

Pattern: 1 Case – History taking in proper format and presentation (25)

Examination of Vitals (5)

IV Semester

First Internal Assessment (Formative)

Practical Exam:

End of posting exam of 50 marks after clinical posting.

Pattern: 1 Case – History taking in proper format and presentation (30)

OSCE – Examination of Vitals, General Examination, Measurement of Blood Pressure, Pulse examination, Examination for pallor, icterus, oedema Feet (20)

Second Internal Assessment (Formative) VI Semester

Practical Exam: End of Posting exam of 50 marks after clinical posting.

Pattern: 1 Case (40) – History taking in proper format and presentation

Examination of Vitals, General Examination, Detailed systemic examination of CVS/RS

OSCE (10) – Signs of Rheumatic Fever, Infective Endocarditis, COPD, Tuberculosis, Allergies, Types and signs of Acute and Chronic respiratory failure, Use of MDI and Nebulizers

Theory Exam: Total 100 Marks. 3 Hours (180 Mins)

Section A: MCQs - 20 Mins

Section B: General Medicine - 110 Mins

Section C: Psychiatry - 25 Mins

Section D: Dermatology - 25 Mins



General Medicine 70 marks + Psychiatry 15 marks + Dermatology 15 marks,

General Medicine - 70 Marks (10 marks MCQ +60 marks)

Syllabus: General & Basic concepts, Clinical pharmacology, Symptomatology, Infectious diseases, Environmental Diseases, Poisonings, Haematology, Nutrition, GIT, Liver and Pancreas.

MCQs – 20 MCQs (1 mark each) (Total = **20 marks**)

(Psychiatry- 5marks, Dermatology- 5marks, Medicine- 10 marks)

Section A– General Medicine

LAQ – 2 questions (can be case scenario) of 10 marks (**Total- 20 marks**)

SAQ - 8 questions with 5 marks each (Total - **40 marks**)

Section B– Psychiatry

SAQ - 2 questions with 5 marks each (Total -10 marks)

Section C – Dermatology

SAQ - 2 questions with 5 marks each (Total -10 marks)

Third Internal Assessment (Formative)VII Semester

Practical Exam: End of Posting exam of 50 marks after clinical posting.

Pattern: 1 Case (40) – History taking in proper format and presentation

Examination of Vitals, General Examination, Detailed systemic examination of CVS/RS/Abdomen/Locomotor system

OSCE (10)

Theory Exam: General Medicine 100 marks.

Total 100 Marks. 3 Hours (180 Mins)

Section A: MCQs - 20 Mins

Section B: General Medicine - 80 Mins

Section C: General Medicine - 80 mins



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

Syllabus: Cardiovascular System, Respiratory System & Tb, Endocrinology & Metabolism, Nephrology, Kidney and genitourinary system, Fluid & Electrolytes, Geriatrics, Genetics

Section A MCQs – 20 MCQs (1 mark each) (Total = **20 marks**)

Section B– General Medicine

LAQ – 1 question (can be case scenario) of 10 marks (**Total- 10 marks**)

SAQ - 6 questions with 5 marks each (**Total - 30 marks**)

Section C– General Medicine

LAQ – 1 question (can be case scenario) of 10 marks (**Total- 10 marks**)

SAQ - 6 questions with 5 marks each (**Total - 30 marks**)

Fourth Internal Assessment (Formative) VIII Semester

Practical Exam: General Medicine – End of Posting exam of 50 marks

Pattern: 2 Short Cases (20 marks each= 40 marks) - General Examination and relevant Systemic Examination in detail

OSCE (10 marks) – Blood sugar, Injection techniques and uses, Interpretation of Xray/ECG, ABG, PFT, Prescription writing, Management of common emergencies.

Theory Exam :

Total 100 Marks. 3 Hours (180 Mins)

MCQs - 20 Mins

Section A General Medicine - 110 Mins

Section B: Part 1- Psychiatry - 25 Mins

Section B: Part 2- Dermatology - 25 Mins

General Medicine 70 marks + Psychiatry 15 marks + Dermatology 15 marks,

General Medicine - 70 Marks (10 marks MCQ +60 marks)



Syllabus: Rheumatology & Immunology, Bone and Musculoskeletal Disorders, Critical Care Medicine, Patient Safety and related topics, medical ethics, Pain & palliative care

MCQs – 20 MCQs (1 mark each) (Total = **20 marks**)

(Psychiatry- 5marks, Dermatology- 5marks, Medicine- 10 marks)

Section A– General Medicine

LAQ – 2 questions (can be case scenario) of 10 marks (**Total- 20 marks**)

SAQ - 8 questions with 5 marks each (**Total - 40 marks**)

Section B– Psychiatry

SAQ - 2 questions with 5 marks each (Total -10 marks)

Section C – Dermatology

SAQ - 2 questions with 5 marks each (Total -10 marks)

Fifth Internal Assessment (Formative)

PreProfessional Exam (MODEL EXAM)

Practical Exam: Total 200 Marks

GENERAL MEDICINE – 160 MARKS

1 Long case of 60 Marks

2 short cases of 25 Marks each. total 50 marks

Viva Voce –

Drugs, Xray, Instruments, Scenarios (ECG) - 10 x 4= 40 marks

OSCE / Spot case discussion (General Medicine) 10 marks

PSYCHIATRY – 20 MARKS

DERMATOLOGY – 20 MARKS



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Department of General Medicine

Undergraduate Curriculum

Theory Exam: Total 200 Marks

Paper I (100 marks)			Paper II (100 marks)			
Sec A	Sec B		Sec A	Sec B	Sec C	
20 marks	Medicine	Medicine	20 marks	Medicine	Part I	Part II
	Part I	Part II		40 marks	PSYCHIATRY	DERMATOLOGY
	40 marks	40 marks			20 marks	20 marks
Q1 MCQs- 20 marks	Q1. 10 marks (1 structured long question of 10 marks)	Q1. 10 marks (1 structured long question of 10 marks)	Q1 MCQs- 20 marks	Q1. 10 marks (1 structured long question of 10 marks)	Q1. 20 marks (4 short Questions of 5 marks each)	Q1. 20 marks (4 short Questions of 5 marks each)
	Q2. 30 marks (6 short Questions of 5 marks each)	Q2. 30 marks (6 short Questions of 5 marks each)		Q2. 30 marks (6 short Questions of 5 marks each)		

ELIGIBILITY TO APPEAR FOR FINAL PROFESSIONAL EXAM:

Minimum Attendance % Required:

Theory – 75%

Practical – 80%

50% marks in theory and practical's separately



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

INTERNAL MARKS CALCULATION

Theory:

Preprofessional exam marks -50% + **N-1** of Internal Assessments -50%

Practical:

Preprofessional exam marks -50% + **N-1** of Internal Assessments -40%
+ Log Book- 10 marks + Discipline, Participation and achievements – 10marks

Summative Assessment

Professional Exam – Final Exam

Practical Exam: Total 200 Marks

GENERAL MEDICINE –

160 MARKS

1 Long case of

60 Marks

2 short cases of 25 Marks each. total

50 marks

Viva Voce –

Drugs, Xray, Instruments, Scenarios (ECG) - 10 x 4= 40 marks

OSCE / Spot case discussion (General Medicine) 10 marks

PSYCHIATRY (OSCE) –

20 MARKS

DERMATOLOGY (OSCE) –

20 MARKS



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

Theory Exam: Total 200 Marks

Paper I (100 marks)			Paper II (100 marks)			
Sec A	Sec B		Sec A	Sec B	Sec C	
	Medicine	Medicine		Medicine	Part I	Part II
20 marks	Part I	Part II	20 marks	40 marks	PSYCHIATRY	DERMATOLOGY
	40 marks	40 marks			20 marks	20 marks
Q1 MCQs- 20 marks	Q1. 10 marks (1 structure d long question of 10 marks)	Q1. 10 marks (1 structure d long question of 10 marks)	Q1 MCQs- 20 marks	Q1. 10 marks (1 structure d long question of 10 marks)	Q1. 20 marks (4 short Questions of 5 marks each)	Q1. 20 marks (4 short Questions of 5 marks each)
	Q2. 30 marks (6 short Question s of 5 marks each)	Q2. 30 marks (6 short Question s of 5 marks each)		Q2. 30 marks (6 short Questions of 5 marks each)		

Final Professional Marks in Medicine & Allied Subjects

Practical = 400 (IA 200 + Prof – 200)

Theory = 400 (IA 200 + Prof – 200)



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MADURAI

Department of General Medicine

Undergraduate Curriculum

Paper wise topic distribution

Paper I (Part A&B -100 marks)	Paper II (Part A-50 marks)
• General and Basic concepts • Clinical Pharmacology • Symptomatology • Patient Safety and related topics • Cardiology • Neurology • Respiratory & TB • Gastroenterology & Liver diseases • Nephrology • Fluid and electrolyte disorders • Environmental Medicine • Genetics • Infectious Diseases • Hematology • Oncology • Critical care	• Endocrinology & and Metabolism • Rheumatology & Immunology • Bone & Musculoskeletal Disorders • Geriatrics • Poisonings & Bites • Nutritional Disorders • Medical Ethics • Pain Management & palliative care • AETCOM

***The above topics in the table are just for sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in general medicine.**



List of cases recommended for Practical examination

Diagnostic cases:

a. Cardiovascular system

- i. Valvular heart disease: Mitral, Aortic Tricuspid, Pulmonary valvular diseases
- ii. Congenital heart disease: Atrial Septal Defect, Ventricular Septal Defect, Patent DuctusArteriosus, Tetralogy of Fallot.
- iii. Congestive heart failure:

b. Respiratory System

- i. Pleural Effusion
- ii. Parenchymal Lung Disease: Fibrosis, Collapse, Cavity, Tumours, Bronchiectasis.
- iii. Obstructive Airway Disease: Bronchial Asthma, COPD

- iv. Superior VenaCaval Obstruction Syndrome
- c. Abdomen
 - i. Ascites
 - ii. Hepatosplenomegaly
- d. Nervous System
 - i. Stroke: Hemiplegia
 - ii. Paraplegia
 - iii. Cranial Nerve Palsy
 - iv. Cerebellar Lesions
 - v. Involuntary Movements
- e. Endocrine System
 - i. Thyroid Disease
 - ii. Cushing Syndrome
- f. General Examination
 - i. Anemia, Icterus
 - ii. Pedal Edema
 - iii. Generalized edema
 - iv. Lymphadenopathy
 - v. Cyanosis
 - vi. Clubbing
 - vii. Rheumatoid Arthritis

Therapeutics

- a. Diabetes Mellitus and metabolic disorders
- b. Hypertension
- c. Human Immunodeficiency Virus Disease
- d. Ischemic Heart Disease
- e. Obstructive Airway Disease.
- f. Tuberculosis

OSCE/ Spot case discussion: Can be from any topic of General Medicine.

Viva Voce (Marks 40)

Is designed to:

1. Evaluate candidate's skill in interpretation of laboratory data, X-rays, ECG, Instruments and drugs
2. To assess handling and approach of medical emergencies.

***The above topics/cases for practicals are just for sensitizing the students about core topics. The actual topics/cases can vary depending upon the time, availability of cases and need of the students.**

Recommended text Books

1. Davidson's Principles and Practice of Medicine, ELBS-Livingstone publications.
2. Kumar & Clark' Clinical Medicine – A textbook for medical students and doctors, ELBS publications.
3. Harrison's Principles of Internal Medicine, McGraw Hill publications (Reference book).
4. Oxford Textbook of Medicine Vol I & II, ELBS publication (Reference book).
5. API textbook of Medicine.
6. Goldman – Cecil Textbook of Medicine (Reference Book).
7. Hutchison's Clinical Methods.
8. Macleod's Clinical Examination by Fiona Nicol, Graham Douglas, Colin Robertson.

9. Physical Diagnosis A Textbook of Symptoms & Physical Signs by Rustom Jal Vakil, Aspi F Golwalla.
10. Bedside Clinics in Medicine by Arup Kumar Kundu.
11. Chamberlain's: Symptoms and Signs in Clinical Medicine

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Department of

General Surgery

Mission Statement

To nurture a vibrant academic platform with a scientific temper, thereby creating leaders in surgical education with a spirit of innovation and inquiry, with provision of comprehensive, cost-effective, patient-centred, quality health care

Motto

Educate, Innovate, Heal

Course Outcomes

At the end of training in Surgery the undergraduate student shall be able to:

Number	Description
C01	Diagnose common surgical conditions and institute appropriate treatment protocols
C02	Identify the conditions requiring emergency intervention and urgent referrals
C03	Effectively communicate with patients and their relatives and counsel regarding the need of surgery in a given condition, with empathy and a humane approach
C04	Institute pre-operative and post-operative care of surgical patients with appropriate follow-up strategy
C05	Deliver emergency care and institute resuscitative measures in life-saving situations
C06	Justify and administer appropriate intravenous fluids and blood / blood products
C07	Implement the principles of asepsis, advocate rational use of antibiotics and adopt universal safety precautions in practice
C08	Perform common diagnostic and simple surgical procedures
C09	Advise and interpret relevant diagnostic tests based on scientific validity and cost-effectiveness
C010	Conduct relief operations during mass casualties
C011	Apply medico-legal and ethical principles related to healthcare
C012	Participate in National Health Programs and demonstrate knowledge regarding National Health Policy
C013	Demonstrate a spirit of inquiry and constructive criticism, with basic research acumen
C014	Perform an objective self-assessment periodically and nurture a quality of life-long learning
C015	Work as an effective member of a healthcare team with the highest professional standards

Course content (Syllabus):

List of topics, Domains, TL methods and Assessment methods

S.No	Topics	Domain K/S/A/C	Level K/KH/SH/P	TL method	Assessment method	Integration
METABOLIC RESPONSE TO INJURY						
1.	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediator	K	KH	Lecture	Written,viva	Physiology
2.	Describe the factors that affect the metabolic response to injury.	K	KH	Lecture	Written,viva	
3.	Describe basic concepts of perioperative care.	K	KH	Lecture	Written,viva	
SHOCK AND BLOOD TRANSFUSION						
4,	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Lecture	Written,viva	Pathology
5.	Describe the clinical features of shock and its appropriate treatment.	K	KH	Lecture	Written,viva	
6.	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	A/C	SH	DOAP	Skill Assessment	
7.	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Lecture	Written,viva	
8.	Observe blood transfusions.	S	SH	SGL	Skill assessment	
9.	Counsel patients and family/ friends for blood transfusion and blood donation.	A/C	SH	DOAP	Skill assessment	
BURNS						
10.	Elicit document and present history in a case	K	KH	Lecture	Written,viva	

	of Burns and perform physical examination. Describe Pathophysiology of Burns					
11.	Describe Clinical features, diagnose type and extent of burns and plan appropriate treatment.	K	KH	Lecture	Written,viva	
12.	Discuss the Medicolegal aspects in burn injuries.	K	KH	Lecture	Written,viva	Forensic medicine
13.	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	A/C	SH	SGL/DOAP	Viva	
WOUND MANAGEMENT						
14.	Describe normal wound healing and factors affecting healing.	K	KH	Lecture	Written,viva	Patholgy
15.	Elicit, document and present a history in a patient presenting with wounds.	C	SH	Lecture/SGL	Written,viva	
16.	Differentiate the various types of wounds, plan and observe management of wounds.	K	KH	Lecture/SGL	Written ,viva	
17.	Discuss medico legal aspects of wounds	K	KH	Lecture/SGL	Written,viva	
SURGICAL INFECTIONS						
18.	Define and describe the aetiology and pathogenesis of surgical Infections	K	KH	Lecture/SGL	Written,viva	Microbiology
19.	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	K	KH	Lecture/SGL	Written,viva	
SURGICAL AUDIT,ETHICS AND PROFESSIONALISM						
20.	Describe the Planning and conduct of Surgical audit	K	KH	Lecture/SGL	Written,viva	Community medicine
21.	Describe the principles and steps of clinical research in General Surgery	K	KH	Lecture/SGL	Written,viva	
22.	Describe the principles of ethics as it pertains to General Surger	K	KH	Lecture/SGL	Written,viva	Forensic Medicine
23	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	A/C	SH	Lecture/DOAP	Written,viva	

24.	Discuss Medico-legal issues in surgical practice	A/C	KH	Lecture/SGL	Written,viva	
INVESTIGATIONS IN SURGICAL PATIENTS						
25.	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	C	KH	Lecture/SGL	Written,viva	
26.	Biological basis for early detection of cancer and multidisciplinary approach in management of cancer	C	KH	Lecture/SGL	Written,viva	
27.	Communicate the results of surgical investigations and counsel the patient appropriately	C	SH	DOAP	Skill assessment	
PERIOPERATIVE MANAGEMENT						
28.	Describe the principles of perioperative management of common surgical procedure	K	KH	Lecture/SGL	Written,viva	
29.	Describe the steps and obtain informed consent in a simulated environment	A/C	SH	DOAP	Skill assessment/Log book	
30.	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures	S	KH	DOAP	Log book	
31.	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	S	P	DOAP	Skill assessment	

ANESTHESIOLOGY AND PAIN MANAGEMENT						
32.	Describe principles of Preoperative assessment	K	KH	Lecture/SGL	Written,viva	Anesthesiology
33.	Enumerate the principles of general, regional, and local Anaesthesia	K	KH	Lecture/SGL	Written,viva	Anesthesiology
34.	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	DOAP	Skill assessment	Anesthesiology
35.	Enumerate the indications and principles of day care General Surgery	K	KH	Lecture/SGL	Written,viva	
36.	Describe principles of providing post-	K	KH	Lecture/SGL	Written,viva	Anesthesiology

	operative pain relief and management of chronic pain					
37.	Describe Principles of safe General Surgery	K	KH	Lecture/SGL	Written,viva	
BASIC SURGICAL SKILLS AND BIOMEDICAL WASTE MANAGEMENT						
38.	Describe Aseptic techniques, sterilization and disinfection	K	KH	Lecture/SGL	Written,viva	Microbiology
39.	Describe Surgical approaches, incisions and the use of appropriate instruments in Surgery in general	K	KH	Lecture/SGL	Written,viva	
40.	Describe the materials and methods used for surgical wound closure and anastomosis (sutures, knots and needles)	K	KH	Lecture/SGL	Written,viva	
41.	Demonstrate the techniques of asepsis and suturing in a simulated environment	S	SH	DOAP	Skill assessment/Log book	
42.	Describe classification of hospital waste and appropriate methods of disposal	K	KH	Lecture/SGL	Written,viva	Microbiology
SURGICAL NUTRITION						
43.	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Lecture/SGL	Written,viva	Physiology
44.	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Lecture/SGL	Written,viva	
45.	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Lecture/SGL	Written,viva	Biochemistry
TRANSPLANT SURGERY						
46.	Describe the immunological basis of organ transplantation	K	KH	Lecture/SGL	Written,viva	Pathology
47.	Discuss the Principles of immunosuppressive therapy. Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Lecture/SGL	Written,viva	Pharmacology
48.	Discuss the legal and ethical issues concerning organ donation	K	KH	Lecture/SGL	Written,viva	
49.	Counsel patients and relatives on organ donation in a simulated environment	S	SH	DOAP	Skill assessment	
MINIMAL INVASIVE SURGERY						
50.	Minimally invasive General Surgery: Describe indications advantages and disadvantages of Minimally invasive General Surgery	K	K	Lecture	Written,viva	
TRAUMATOLOGY						
51.	Describe the Principles of FIRST AID	S	KH	SGL	Written/viva	
52.	Demonstrate the steps in Basic Life	S	SH	DOAP	Skill	Aneesthesiology

	Support. Transport of injured patient in a simulated environment				assessment	
53.	Describe the Principles in management of mass casualties	K	KH	SGL	Written,viva	
54.	Describe Pathophysiology, mechanism of head injuries	K	KH	SGL	Written,viva	
55.	Describe clinical features, Appropriate investigation and principles of management of head injuries	K	KH	SGL	Written,viva	
56.	Describe the clinical features of soft tissue injuries. Chose appropriate investigations and discuss the principles of management.	K	KH	SGL	Written,viva	
57.	Describe the pathophysiology,clinical features and appropriate management of chest injuries.	K	KH	SGL	Written,viva	
58.	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	S	SH	DOAP	Skill assessment/ Log book	Anesthesiology
SKIN TUMOURS						
59.	Describe the pathogenesis, clinical features and management of various cutaneous and subcutaneous infections	K	KH	Lecture	Written,viva	
60.	Classify skin tumors Differentiate different skin tumors and discuss their management	K	KH	Lecture	Written,viva	
61.	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan	S	SH	DOAP	Skill assessment	
HEAD AND NECK						
62.	Describe the etiology and classification and principles of management of cleft lip and palate	K	KH	Lecture	Written,viva	Anatomy
63.	Describe etiopathogenesis symptoms and signs and principles of management of oropharyngeal cancer	K	KH	Lecture	Written,viva	
64.	Describe surgical anatomy of the salivary glands, pathology, and clinical presentation and management of disorders of salivary gland	K	KH	Lecture	Written,viva	
ENDOCRINE SURGERY						
65.	Describe the applied anatomy and physiology and etiopathogenesis of thyroid disorders	K	KH	Lecture	Written,viva	
66.	Demonstrate and document the correct clinical examination of thyroid swellings and discuss the differential diagnosis and their management	S	SH	DOAP	Skill assessment	

67.	Describe the clinical features, classification and principles of management of thyroid cancer	K	KH	Lecture	Written,viva	General medicine
68.	Describe the applied anatomy and disorders of parathyroid gland	K	KH	Lecture	Written,viva	
69.	Describe the applied anatomy,etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Lecture	Written,viva	
70.	Describe the clinical features, principles of investigation and management of Adrenal tumors	K	KH	Lecture	Written,viva	
71.	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis	K	KH	Lecture	Written,viva	
72.	Describe the clinical features, principles of investigation, prognosis and management of pancreatic endocrine tumours	K	KH	Lecture	Written,viva	
BREAST						
73.	Describe applied anatomy and appropriate investigations for breast disease	K	KH	SGL	Written,viva, Skill assessment	
74.	Describe the etiopathogenesis, clinical features and principles of management of benign breast disease including infections of the breast	K	KH	SGL	Written,viva, Skill assessment	
75.	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast	K	KH	SGL	Written,viva, Skill assessment	
76.	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	A/C	SH	DOAP	Skill assessment	
77.	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	S	SH	DOAP	Skill assessment	
CARDIO-THORACIC SURGERY						
78.	Outline the role of surgery in the management of coronary heart disease, valvular heart diseases and congenital heart disease	K	KH	Lecture	Written,viva	
79.	Describe the clinical features of mediastinal diseases and the principles of management	K	KH	Lecture	Written,viva	
80.	Describe the etiology, pathogenesis, clinical features of tumors of lung and the principles of management	K	KH	Lecture	Written,viva	
VASCULAR SURGERY						
81.	Describe the etiopathogenesis, clinical features, investigations and principles of treatment of occlusive arterial diseases	K	KH	SGL	Written,viva	
82.	Demonstrate the correct examination	S	SH	DOAP	Skill	

	of the vascular system and enumerate and describe the investigation of vascular diseases				assessment	
83.	Describe clinical features, investigations and principles of management of vasospastic disorders	K	KH	SGL	Written,viva, Skill assessment	
84.	Describe the types of gangrene and principles of amputation	K	KH	SGL	Written,viva, Skill assessment	
85.	Describe the applied anatomy, pathophysiology, clinical features, Investigations and principles of management of DVT and Varicose vein	K	KH	SGL	Written,viva, Skill assessment	
86.	Describe pathophysiology, clinical features, investigations and principles of management of Lymph edema, lymphangitis and Lymphoma	K	KH	SGL	Written,viva, Skill assessment	
87.	Demonstrate the correct examination of the lymphatic system	S	SH	DOAP	Skill assessment	
HERNIAS						
88.	Describe pathophysiology, clinical features, Investigations and principles of management of Hernia	K	KH	SGL	Written,viva, Skill assessment	
89.	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias	S	SH	DOAP	Skill assessment	
GASTROINTESTINAL SURGERY						
90.	Describe causes, clinical features, complications and principles of management of peritonitis	K	KH	Lecture	Written,viva	
91.	Describe pathophysiology, clinical features, investigations and principles of management of Intra-abdominal abscess, mesenteric cyst, and retroperitoneal tumors	K	KH	Lecture	Written,viva	
92.	Describe the applied anatomy,physiology, clinical features, investigations and principles of management of benign and malignant disorders of esophagus	K	KH	Lecture	Written,viva	Anatomy
93.	Describe the anatomy,physiology and discuss the aetiology, the clinical features, investigations and principles of management of congenital hypertrophic pyloric stenosis, Peptic ulcer disease, Carcinoma stomach	K	KH	Lecture	Written,viva	Anatomy
94.	Demonstrate the correct technique of examination of a patient with disorders of the stomach	S	SH	DOAP	Skill assessment	
95.	Describe the applied anatomy of liver. Describe the clinical features, Investigations and principles of management of liver abscess,	K	KH	Lecture	Written,viva	Anatomy

	hydatid disease, injuries and tumors of the liver					
96.	Describe the applied anatomy of spleen. Describe the clinical features, investigations and principles of management of splenic injuries. Describe the post-splenectomy sepsis - prophylaxis	K	KH	Lecture	Written,viva	Anatomy
97.	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system	K	KH	SGL	Written,viva	Anatomy
98.	Describe the applied anatomy,clinical features, investigations and principles of management of disorders of small and large intestine including neonatal obstruction and Short gut syndrome	K	KH	Lecture	Written,viva	Anatomy
99.	Describe the clinical features, investigations and principles of management of diseases of Appendix including appendicitis and its complications	K	KH	SGL	Written,viva, skill assessment	
100.	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Lecture	Written,viva	Anatomy
101.	Describe the clinical features, investigations and principles of management of common anorectal diseases	K	KH	Lecture	Written,viva	
102.	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	S	SH	DOAP	Skill assessment	
URINARY SYSTEM						
103.	Describe the causes, investigations and principles of management of Hematuria	K	KH	Lecture	Written,viva	
104.	Describe the clinical features, investigations and principles of management of congenital anomalies of genitourinary system	K	KH	Lecture	Written,viva	Anatomy
105.	Describe the Clinical features, Investigations and principles of management of urinary tract infection	K	KH	Lecture	Written,viva	Microbiology
106.	Describe the clinical features, investigations and principles of management of hydronephrosis	K	KH	Lecture	Written,viva	
107.	Describe the clinical features,investigations and principles of management of renal calculi	K	KH	Lecture	Written,viva	
108.	Describe the clinical features, investigations and principles of management of renal tumours	K	KH	Lecture	Written,viva	

109.	Describe the principles of management of acute and chronic retention of urine	K	KH	Lecture	Written,viva	
110.	Describe the clinical features, investigations and principles of management of bladder cancer	K	KH	Lecture	Written,viva	
111.	Describe the clinical features, investigations and principles of management of disorders of prostate	K	KH	Lecture	Written,viva	
112.	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	S	SH	DOAP	Skill assessment	
113.	Describe clinical features, investigations and management of urethral stricture	K	KH	Lecture	Written,viva	
GENITAL SYSTEM						
114.	Describe the clinical features, investigations and principles of management of phimosis, paraphimosis and carcinoma penis	K	KH	SGL	Written,viva, skill assessment	
115.	Describe the applied anatomy clinical features, investigations and principles of management of undescended testis	K	KH	SGL	Written,viva, skill assessment	Anatomy
116.	Describe the applied anatomy clinical features, investigations and principles of management of epididymo-orchitis	K	KH	SGL	Written,viva, skill assessment	
117.	Describe the applied anatomy clinical features, investigations and principles of management of varicocele	K	KH	SGL	Written,viva, skill assessment	
118.	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	SGL	Written,viva, skill assessment	
119.	Describe classification, clinical features, investigations and principles of management of tumours of testis	K	KH	SGL	Written,viva, skill assessment	

List of topics:

General surgery	
1.	History of surgery
2.	Wound healing
3.	Shock
4.	Burns
5.	Fluid and electrolyte imbalance
6.	Acid base disorders
7.	Blood and blood transfusion
8.	Tetanus
9.	Gas gangrene
10.	Sterilization,disinfection and OT techniques
11.	General aspects of neoplasia
12.	Acute infections
13.	Chronic infections
14.	Pre and post operative care
15.	Surgical audit and ethics
16.	Nosocomial infections
17.	Hand infections
18.	Foot infections
19.	Surgical nutrition
20.	Diabetic foot
21.	Necrotizing fascitis
22.	Diseases of nerves
23.	Principles of organ transplantation
24.	Principles of minimal access surgery, robotic surgery
25.	Principles of chemotherapy,radiotherapy
26.	Day care surgery
27.	Universal safety precautions
Skin and subcutaneous infections	
28.	Common skin infections

29.	Benign skin neoplasm
30.	Malignant skin neoplasm
31.	Skin grafting

Head and neck

32.	Oral malignancies
33.	Benign salivary tumours
34.	Malignant salivary tumours
35.	Salivary infections
36.	Oropharyngeal carcinoma
37.	Cleft lip and palate
38.	Jaw tumours
39.	Neck swellings
40.	CNS tumours, spina bifida, hydrocephalus

Traumatology

41.	Polytrauma
42.	Head injury
43.	Chest injury
44.	Soft tissue injury
45.	Abdomen injury
46.	Maxillofacial injury

Endocrine surgery

47.	Benign thyroid tumour
48.	Malignant thyroid tumours
49.	Adrenal tumours
50.	Pancreatic endocrine tumours

Breast

51.	Breast infections
52.	Benign breast tumours
53.	Malignant breast tumours
54.	Breast reconstruction

Vascular surgery	
55.	Peripheral arterial diseases
56.	Diseases of aorta
57.	Venous diseases
58.	Lymphatic disorders
59.	Thoracic outlet syndrome
Gastrointestinal tract	
60.	Esophagus
61.	Stomach and duodenum
62.	Small intestine
63.	Large intestine
64.	Appendix
65.	Rectum and anal canal
66.	Peritoneum
67.	Umbilicus
68.	UGI bleeding
69.	LGI bleeding
70.	Abdomen tuberculosis
Hepato-pancreato-biliary and spleen	
71.	Liver
72.	spleen
73.	Pancreas
74.	Extrahepatic biliary apparatus
75.	Portal hypertension
76.	Obstructive jaundice
Genito-urinary system	
77.	Kidney
78.	Ureter
79.	Bladder

80.	Urethra
81.	Scrotum
82.	Penis
83.	Genito-urinary tuberculosis
84.	Prostate
85.	Hernia
86.	Hematuria
87.	Acute retention of urine

Cardiothoracic surgery

88.	Cardiac arrest
89.	Myocardial revascularization
90.	Pulmonary embolism
91.	Lung tumours
92.	Empyema thoracis

Paediatric surgery

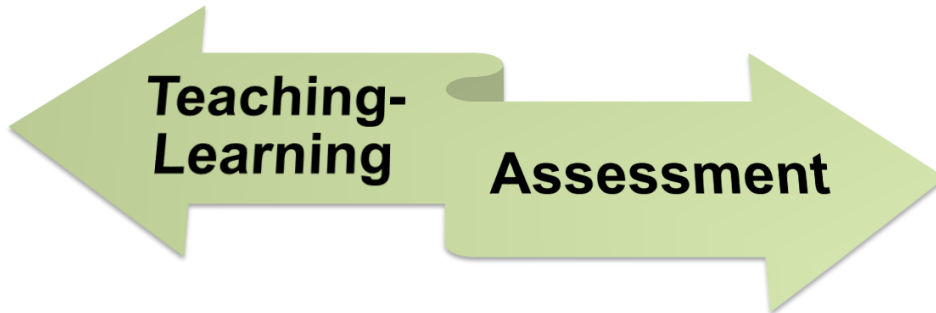
93.	Congenital Diaphragmatic Hernia, Tracheo-Oesophageal Fistula
94.	Anorectal malformations
95.	Hypospadias, epispadias, ectopia vesicae
96.	Hirschprung's disease
97.	Congenital hypertrophic pyloric stenosis
98.	Meconium ileus, necrotising enterocolitis
99.	Choledochal cyst
100.	Exompholus, gastroschisis

Skills:

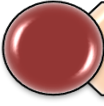
S.no	Skills
1.	Art of history taking
2.	Arriving at a logical working diagnosis
3.	Formulation of relevant investigation protocol for common surgical conditions and emergencies
4.	Preparation of treatment algorithm for common surgical conditions and emergencies
5.	Writing a case record
6.	Infection Control practices and use of Personal Protective Equipment
7.	Informed Consent for a procedure
8.	Techniques of asepsis
9.	Principles of First Aid
10.	IV access and monitoring
11.	Start and monitor blood transfusion
12.	Venesection
13.	Cardiopulmonary Resuscitation
14.	Evaluation and stabilization of a patient with acute volume loss and GI bleed
15.	Nasogastric tube insertion
16.	Urinary catheterization
17.	Digital rectal examination
18.	Proctoscopy
19.	Endotracheal intubation
20.	Palpation of breast lesions
21.	Basic suturing
22.	Wound debridement
23.	Wound dressings
24.	Controlling external haemorrhage
25.	Bandages
26.	Biopsies of surface lesions
27.	Incision and drainage of Abscesses
28.	Removal of small subcutaneous swellings
29.	Peritoneal and pleural tapping
30.	Tracheostomy
31.	Intercostal drainage

32.	Identification of indications for surgical referral
33.	Assessment of burn injury with preliminary management
34.	Cricothyroidotomy
35.	Counselling for organ donation
36.	Basic Life Support
37.	Principles of pre-hospital care and triage
38.	Demonstration of Advanced Trauma Life Support
39.	Principles and steps for common nerve blocks used in Surgery

Curriculum:



Teaching-Learning:

-  **Didactic Lectures**
-  **Tutorials**
-  **Seminars**
-  **Integrated Teaching**
-  **Self Directed Learning**
-  **Clinical postings**
-  **PBL / OSCE**

Didactic Lectures:

Semester	Professional Year	Number of Lectures
3rd	2nd	11
4th		17
5th		15
6th	3rd (I)	21
7th		34
8th	3rd (II)	21
9th		11
Total		130

Tutorials / Seminars / Integrated Teaching:

Semester	Professional Year		Total Hours
6th	3rd (I)		21
7th			34
8th	3rd (II)		84
9th			33
Total			172

Clinical Postings:

Semester	Professional Year	Number of weeks
3rd	2nd	4*
4th		4
6th	3rd (I)	4
7th		2
8th	3rd (II)	6
9th		4
	Total	24

**Orientation Program for 5 days*

Allied postings:

Subject	Semester	Number of weeks
Orthopaedics	3rd	2
	7th	4
Radio-diagnosis	5th	2
Anaesthesia	8th	1

Undergraduate Lecture Program

3rd Semester (13)

S.no	Topics
1.	History of surgery
2.	Wound healing
3.	Shock – I
4.	Shock – II
5.	Burns – I
6.	Burns – II
7.	Fluid and electrolyte balance
8.	Acid base disorders
9.	Blood and blood transfusion
10.	Tetanus
11.	Gas gangrene
12.	Sterilization, disinfection and OT techniques
13.	General aspects of neoplasia

4th Semester (12)

14.	Acute infection
15.	Chronic infection
16.	Hand infections
17.	Nosocomial infections
18.	Diseases of arteries – I
19.	Diseases of arteries – II
20.	Diseases of veins – I
21.	Diseases of veins – II
22.	Diseases of lymphatics - I
23.	Diseases of lymphatics – II
24.	Diseases of nerves
25.	Surgical nutrition

6th Semester (13)

26.	Skin grafting
27.	Skin and subcutaneous tissue
28.	Diabetic foot
29.	Principles of organ transplantation
30.	Principles of minimal access surgery, robotic surgery
31.	Surgical audit and ethics
32.	Universal safety precautions
33.	Salivary gland diseases – I
34.	Salivary gland diseases – II
35.	Oral cavity - I
36.	Oral cavity – II
37.	Oral cavity – III
38.	Thoracic outlet syndrome

7th Semester (12)

39.	Neck swellings – I
40.	Neck swellings – II
41.	Diseases of thyroid - I
42.	Diseases of thyroid – II
43.	Diseases of thyroid – III
44.	Diseases of parathyroid
45.	Benign breast diseases – I
46.	Benign breast diseases – II
47.	Malignant breast diseases – I
48.	Malignant breast diseases – II
49.	Adrenal disorders – I
50.	Adrenal disorders - II

8th Semester (35)

51.	Esophagus -I
52.	Esophagus -II
53.	Esophagus – III
54.	Stomach and duodenum – I
55.	Stomach and duodenum – II
56.	Stomach and duodenum – III
57.	Stomach and duodenum – IV
58.	Small intestine
59.	Large intestine – I

60.	Large intestine – II
61.	Appendix
62.	Rectum and anal canal – I
63.	Rectum and anal canal – II
64.	Rectum and anal canal – III
65.	Abdomen wall
66.	Umbilicus
67.	Peritoneum
68.	UGI bleed
69.	LGI bleed
70.	Extrahepatic biliary apparatus – I
71.	Extrahepatic biliary apparatus – II
72.	Extrahepatic biliary apparatus - III
73.	Obstructive jaundice – I
74.	Obstructive jaundice - II
75.	Portal hypertension – I
76.	Portal hypertension -II
77.	Liver – I
78.	Liver – II
79.	Liver – III
80.	Pancreas – I
81.	Pancreas – II
82.	Pancreas - III
83.	Spleen – I
84.	Spleen - II

85.	Abdominal tuberculosis

9th Semester (35)

86.	Kidney – I
87.	Kidney – II
88.	Ureter
89.	Urinary bladder – I
90.	Urinary bladder – II
91.	Urethra
92.	Scrotum – I
93.	Scrotum – II
94.	Hernia – I
95.	Hernia – II
96.	Hematuria
97.	Acute retention of urine
98.	Genito-urinary tuberculosis
99.	Penis
100.	Head injury
101.	Hydrocephalus, spina bifida
102.	Cleft lip, cleft palate
103.	Maxillo-facial injuries
104.	Jaw tumours
105.	Chest injuries
106.	Cardiac arrest
107.	Myocardial revascularization
108.	Pulmonary embolism, empyema thoracis

109.	CDH, TEF
110.	Anorectal malformations
111.	Hypospadias, epispadias, ectopia vesicae
112.	Hirschprung's disease
113.	CHPS, Meconium ileus, choledochal cyst
114.	Exomphalos, Gastroschisis
115.	Necrotising enterocolitis
116.	Pre and post operative care
117.	Anesthesia
118.	Polytrauma
119.	Principles of chemotherapy, radiotherapy
120.	Day care surgery

Self-directed learning:

6th semester	
1.	Diabetic foot
2.	Immunological basis of organ transplantation
3.	Thyroiditis
4.	Breast infections
5.	phaeochromocytoma
8th semester	
6.	Esophageal motility disorders
7.	Carcinoid tumours
8.	Pathophysiology of portal hypertension

9.	Indications for splenectomy & OPSI
10.	Retroperitoneal tumours
11.	Embryological basis of umbilical nodule/discharge
12.	Pseudomyxoma peritonii
9th semester	
13.	Paediatric renal tumours
14.	Bladder rupture
15.	Paediatric intestinal obstruction
16.	Jaw tumours
17.	Anorectal malformations
18.	Necrotizing fascitis
19.	Peripheral nerve sheath tumour
20.	Hand and foot space infections

Clinical cases

Long cases

1.	Inguinal hernia
2	Thyroid swelling
3.	Breast lump
4.	Peripheral vascular disease
5.	Varicose vein
6.	Abdomen lump

Short cases

1.	Lower limb Ulcers
2.	scalp swellings
3.	Neck swelling
4.	Vascular swellings
5.	Oral ulcers
6.	Lymph node swellings
7.	Skin and subcutaneous swellings
8.	Soft tissue sarcoma
9.	Scrotal swellings
10.	Penile ulcer

Record / log book maintenance:

Students will be provided with surgery record / log book wherein they are instructed to fill up the case records during the clinical and operating room postings and get it signed from the respective unit heads on regular basis.

SMALL GROUP LEARNING:



Symposia / seminar



Surgical Pathology



Instruments



Tubes-catheters



Operative surgery



Radiology

Symposia / seminar

S.No.	Topics
1.	Head trauma – clinical approach
2.	Cystic neck swellings
3.	Chronic non healing lower limb ulcer
4.	Thermal burns – clinical approach
5.	Scalp swellings
6.	Oral ulcers
7.	Cervical lymphadenopathy
8.	Blackish discoloration of toes - cli
9.	Varicose veins
10.	Salivary swellings
11.	Chest trauma – clinical approach
12.	Polytrauma – clinical approach
13.	Cutaneous malignancy
14.	Midline neck swellings
15.	Dyaphagia – clinical approach
16.	Right hypochondrial mass
17.	Epigastric lump
18.	Right iliac fossa mass
19.	UGI bleed – clinical approach
20.	LGI bleed – clinical approach
21.	Abdomen trauma – clinical approach
22.	Perforative peritonitis -

23.	Intestinal obstruction -
24.	Inguino-scrotal swellings
25.	Scrotal swellings
26.	Umbilical nodule / discharge
27.	Femoral swellings
28.	Non pitting edema of lower limbs
29.	Retroperitoneal mass
30.	Loin mass – clinical approach
31.	Acute retention of urine
32.	Hematuria – clinical approach
33.	Penile ulcer
34.	Generalised lymphadenopathy – clinical approach
35.	Breast lump – clinical approach
36.	Multi-nodular goitre
37.	Solitary nodule thyroid
38.	Clinical approach to shock

Surgical pathology:

S.no	Specimens
1.	Goitre
2.	Appendicitis
3.	Cholelithiasis
4.	Carcinoma penis
5.	Carcinoma head of pancreas
6.	Carcinoma breast
7.	Renal tumours
8.	Amputated foot
9.	Urolithiasis
10.	Lipoma
11.	Oral malignancy
12.	Hydatid cyst
13.	Splenomegaly
14.	Hemicolectomy
15.	Carcinoma stomach
16.	Testicular malignancy
17.	Testicular torsion
18.	Intestinal perforation
19.	Meckel's diverticulum

Instruments:

S.no	Instruments
1.	Allis forceps
2.	Babcock forceps
3.	Kocher forceps
4.	Lane's forceps
5.	Sinus forceps
6.	Straight hemostat
7.	Curved hemostat
8.	Right angled hemostat
9.	Needle holder
10.	Cheate's forceps
11.	Needles (round bodied, cutting)
12.	Randall's pyelolithotomy forceps
13.	Des Jarden's choledocholithotomy forceps
14.	BP handle
15.	Surgical blades
16.	Humby's knife
17.	Straight scissors
18.	Curved scissors
19.	Doyen's retractor
20.	Zerney's retractor
21.	Deavor's retractor
22.	Balfour's retractor
23.	Sponge holding forceps
24.	Towel clips

25.	Proctoscope
26.	Fistula probe
27.	Anal dilator
28.	Urethral dilator
29.	Intestinal clamps
30.	Tongue depressor

Tubes-Catheters:

s.no	Items
1.	Foley's catheter
2.	urobag
3.	Ryle's tube
4.	Scalp vein set
5.	IV set
6.	Blood transfusion set
7.	Nelaton's catheter
8.	Tracheostomy tube
9.	Endotracheal tube
10.	Suture materials
11.	IV fluids
12.	Betadine
13.	Hydrogen peroxide
14.	Gauze
15.	Gamgee pad
16.	Syringes
17.	Needles
18.	Crepe bandage
19.	Romovac suction drain
20.	Tube drain
21.	Corrugated rubber drain
22.	ICD bag
23.	Pig tail catheter

24.	DJ Stent
25.	SPC
26.	Lignocaine jelly

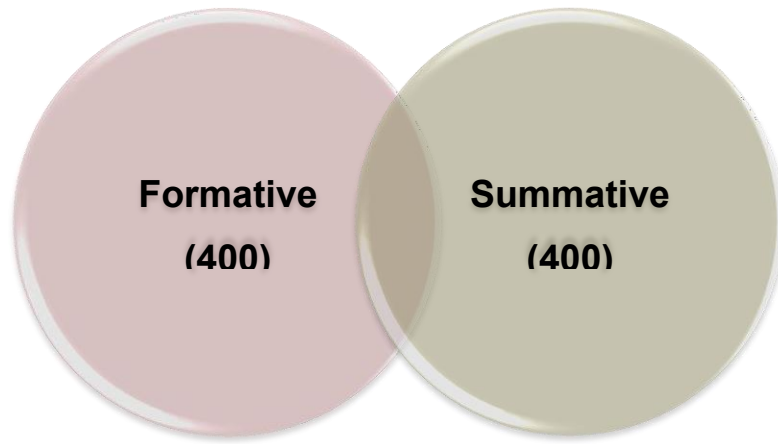
Short Procedures / operative surgery:

S.no	Procedures
1.	Appendicectomy
2.	Incision and drainage
3.	Surgeries for inguinal hernia
4.	Surgeries for hydrocele
5.	Varicose vein surgery
6.	Thyroidectomy
7.	Modified radical mastectomy
8.	Excision biopsy
9.	Nasogastric tube placement
10.	Urinary catheterization
11.	Venesection
12.	ICD placement
13.	Tracheostomy
14.	CLW suturing
15.	Circumcision
16.	Suprapubic cystostomy

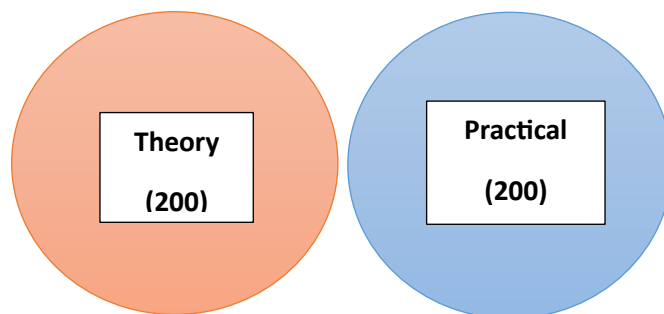
Radiology

S.no	Radiograph
1.	Gas under diapgram
2.	Air fluid levels
3.	Foreign body in GIT
4.	Renal calculus
5.	Ureteric calculus
6.	Vesico-ureteric junction calculus
7.	CXR – Cannon ball metastasis
8.	CXR – Pneumothorax
9.	CXR – Fracture ribs
10.	CXR – Miliary tuberculosis
11.	CXR – Pleural effusion
12.	CXR – ICD in situ
13.	Barium swallow
14.	Barium meal
15.	Barium enema
16.	Intravenous pyelography
17.	Micturating cystourethrography
18.	Mammogram
19.	Orthopantomogram
20.	X-Ray skull
21.	X-Ray neck AP&Lat
22.	Invertogram
23.	T-Tube cholangiogram / PTC

Assessment



Formative (400 marks)



Theory:

Semester	Marks	Components
6th	100	Surgery (50) + ENT (15) + Orthopaedics (15) + Ophthalmology (20)
8th	100	Surgery (50) + ENT (15) + Orthopaedics (15) + Ophthalmology (20)
9th (Pre- Professional)	200	Paper I (100) + Paper II (100)
Total		400 (to be converted out of 200)

Note: The Pre-professional Examination will be conducted in accordance with the pattern of the final examination for theory.

Final Examination Pattern:

Component	Marks
Paper - I	100
Paper - II	100
Total	200 marks

Each paper will have a duration of three hours.

Paper I (100 marks)

Surgery

(General Surgery, Head Face Neck, Breast, Endocrine, Trauma, Gastro-intestinal Tract, Hepato-biliary, Spleen, Genito-Urinary Tract)

Section A (20 marks) – MCQ's

Multiple choice questions (20 items X 1 marks each) (20 marks)

SECTION -B (40 Marks)

1. Structured Long Answer Question (1 questions X 10 marks) (10 marks)
2. Short Answer questions (6questions X 5 marks each) (30 marks)

Section C (40 marks)

1. Structured Long Answer Question (1 questions X 10 marks) (10 marks)
2. Short Answer questions (6questions X 5 marks each) (30 marks)

**Paper II (100
marks)**

Surgery

(Surgery and Allied: Paediatric Surgery, Neurosurgery, CVTS, Plastic Surgery, Radio-diagnosis, Dentistry, Anesthesia; Orthopaedics, Ophthalmology, Otorhinolaryngology)

Section A (20 marks) – MCQ's

Multiple choice questions (20 items X 1 marks each) (20 marks) (each subject 5 marks)

Section B (40 marks)

Part 1: ***Surgery and Allied*** (20 marks)

1. Short Answer Questions (4 questions X 5 marks each) (20 marks)

Part 2: ***Orthopaedics*** (20 marks)

2. Short Answer Questions (4 questions X 5 marks each) (20 marks)

Section C (40 marks)

Part 1: ***Ophthalmology*** (0 marks)

3. Short Answer Questions (4 questions X 5 marks each) (20 marks)

Part 2: ***Otorhinolaryngology*** (20 marks)

4. Short Answer Questions (4 questions X 5 marks each) (20 marks)

Practical:

Semester	Marks	Components
3 rd	15	Surgery
4 th	15	Surgery
6 th	35	Surgery
7 th	35	Surgery

8 th	90	Surgery (30) + Ophthalmology (20) + ENT (20) + Orthopaedics (20)
	10	Log book
9 th (Prelims)	200	As per Final Exam pattern
Total		400 (to be converted out of 200)

Note: *The Prelim Examination will be conducted in accordance with the pattern of the final examination for practical.*

Eligibility Criteria:

Attendance	Theory	Clinics
General Surgery (Including Orthopaedics, Anesthesia)	75%	80%
ENT/ Ophthalmology	75%	80%

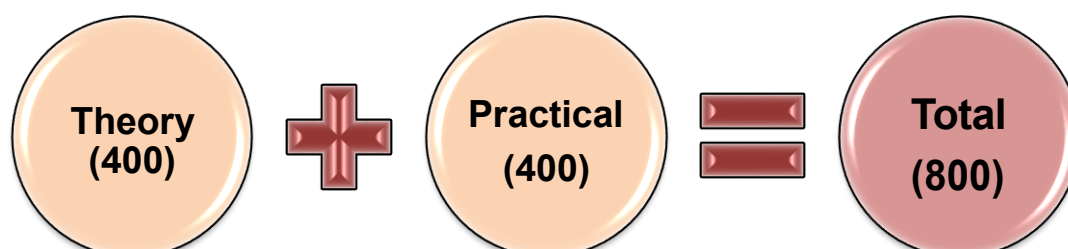
Note: Student should obtain a minimum of 50% marks in Formative Assessment (Theory and Practical), in order to be eligible for the University Examination.

Final Practical Examination Pattern:

Subject	Component	Marks	Section
Surgery	1 Long Case	40	
	1 Short Case	20	
Ophthalmology	1 Short Case	10	Clinical
Otorhinolaryngology	1 Short Case	10	
Orthopaedics	1 Short Case	10	
OSCE	8*5 (5 stations for Surgery and other 3 each one)	40	
Total	130 marks		
Surgery	40 (Surgical Pathology (10) + Radiology (10) + Instruments & Tubes Catheters (10) and Operative Surgery (10))		
Ophthalmology	10		
Otorhinolaryngology	10		Viva
Orthopaedics	10		
Total	70 marks		
Grand Total	130 + 70 = 200 marks		

Final Result:

Theory			Practical			Grand Total (800)
Internal Assessment (200)	Final Exam (200)	Total (400)	Internal Assessment (200)	Final Exam (200)	Total (400)	



Department of General Surgery

AIIMS Madurai

Blue print

Paper 1

Section A - 20 MCQ

S. No.	Topic	MCQ
1	GIT	5
2	Breast	3
3	Endocrine	3
4	General Surgery	5
5	Head and Neck	2
6	Trauma	2

Section -B

S. No.	Topic	LAQ	SAQ	VSAQ
1	GIT	1	2	5
2	Head and Neck	-	1	-
3	Trauma	-	1	-

Section C (Module 1)

S. No.	Topic	LAQ	SAQ	VSAQ
1	Breast	1	1	
2	Thyroid	-	1	-
3	Burns/ Shock/wound	-	1	1
4	Surgical Infections/Blood Transfusion		1	1
5	Nutrition			1

6	Radio diagnosis			1
7	Trauma			1

Section C (Module 2)

S. No.	Topic	LAQ	SAQ	VSAQ
1	Breast		1	1
2	Thyroid	1	1	-
3	Burns/ Shock/wound	-	1	1
4	Surgical Infections/Blood Transfusion			1
5	Nutrition		1	
6	Radio diagnosis			1
7	Trauma			1

Paper 2

Section A - 20 MCQ

S. No.	Topic	MCQ
1	Surgery & Allied	5
2	Orthopaedics	5
3	Otolaryngology	5
4	Ophthalmology	5

Section B

S. No.	Topic	SAQ
1	Urology	1
2	Plastic Surgery	1
3	CTVS	1
4	Paediatric Surgery	1

Recommended

Books:Textbooks:

1. Love and Bailey's Textbook of Surgery
2. Textbook of Surgery by S.Das
3. Clinical Methods in Surgery by S. Das
4. SR Bhat's Clinical Surgery
5. Hamilton Bailey's Clinical Signs
6. Pye's surgical handicraft

Reference Books:

1. Schwartz' Textbook of Surgery
2. Sabiston's Textbook of Surgery
3. Smith's Textbook of Urology

Model Question paper

Paper 1

Section A - 20 MCQ

Section B :

Long answer Question:

1. 50 year old male patient came to the hospital with complaint of abdomen pain and vomiting for the past one month on and off. O/E Pallor + Abdomen soft , epigastric mass palpable with VGP +.
A) what is the probable diagnosis? (2 marks)
B)What are the investigations to be done?(2 marks)
C) how will you manage this patient?(6 marks)

Short Answer questions:

2. Management of Appendicular Mass.
3. Clinical features and Management of pancreatitis.
4. Pleomorphic adenoma
5. Investigations and management of Sub Dural Hematoma.

Very Short Answer Questions:

6. Define esophagitis.
7. Preparation of bowel for colonoscopy.
8. Courvoisiers law
9. Goodsalls rule for fistula in Ano.
10. Enumerate the risk factors for carcinoma Colon.

Section -C

Long answer Question:

11. Risk factors and management of Carcinoma Breast. (3 +7)

Short answer Question:

12. Breast Reconstruction.
13. Management of Papillary carcinoma Thyroid.
14. How will you manage a case of 40% Burns.
15. Complications of Blood Transfusion.

Very Short answer question:

16. Define Shock.
17. Causes of Surgical site infection.
18. List the complications of Total parental nutrition.
19. Indications of Ultrasound Abdomen
20. Components of Glass cow coma scale.

Paper -2

Section A - 20 MCQ.

Section B

Part 1: (4 * 5 = 20 Marks)

1. Clinical features and Management of Benign Prostatic Hypertrophy.
2. Cleft lip and Cleft palate.
3. Management of Hemothorax.
4. Hirschsprung disease.



अखिल भारतीय आयुर्विज्ञान संस्थान, मदुरै

All India Institute of Medical Sciences,
Madurai, Tamil Nadu

Department of
Paediatrics

UG CURRICULUM

Contents

1. Mission of the department.....	1
2. Goals and Objectives	2
3. Competency based curriculum	5
4. Teaching schedule.....	23
5. Semester wise teaching template	25
6. List of certifiable skills.....	34
7. Formative and summative assessment	35
8. Reference books	36
9. Model question paper	41

1. Mission

The Department of Pediatrics at AIIMS, Madurai is committed to fulfilling its vision through the following missions:

a) **Exceptional Patient Care:**

Provide the highest standard of evidence- based medical care, specialized treatments, and comprehensive services to infants, children, and adolescents.

b) **Education and Training:**

Foster a nurturing and dynamic learning environment for medical students, residents, and fellows, empowering them with knowledge, skills, and empathy to become skilled and compassionate pediatricians.

c) **Cutting-edge Research:**

Conduct innovative and impactful research focused on advancing pediatric healthcare, identifying new treatments, and improving health outcomes for children.

d) **Continuous Quality Improvement:**

Continuously monitor and evaluate our services, educational programs, and research to identify areas for improvement and implement evidence-based practices that lead to better patient outcomes and educational excellence.

e) **Interdisciplinary Collaboration:**

Embrace a multidisciplinary approach to pediatric care, fostering collaboration among various specialties to provide comprehensive, integrated, and family- centered healthcare services.

By embracing this vision and mission, the Department of Pediatrics aspires to become a beacon of hope, innovation, and excellence in pediatric healthcare, shaping the future of children's medicine and positively impacting the lives of countless children and families

1. GOALS AND OBJECTIVES

1.1 Goals:

The broad goals of the teaching of undergraduate students in Pediatrics are to provide knowledge and appropriate skills by creating a nurturing and dynamic learning environment to become skilled and compassionate Indian medical graduates both in the community and in the hospital as part of a team, to ensure the optimal growth and development of children and the optimal management of common childhood illnesses.

1.2. Objectives:

At the end of training in Pediatrics the undergraduate student shall be able to:

1.2.1 Knowledge

- (a) Describe the normal growth and development during fetal life, neonatal period, childhood and adolescence and outline deviations thereof
- (b) Understand and describe the common pediatric diseases and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, complications, diagnostic methods, rational management, rehabilitation, prevention, and referral criteria, with appropriate parental education and counselling
- (c) State age related requirements of calories, nutrients, fluids, drugs etc. in health and disease
- (d) Understand and describe the routine newborn care and management of common neonatal problems
- (e) Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents, and child abuse
- (f) Outline national programmes relating to child health including immunization programs



1.2.2 Skills

- a) Take a detailed paediatrics history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigations and plan and institute therapy
- b) Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data to generate differential diagnoses and develop individualized management plans.
- c) Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- d) Calculate age-related requirements of calories, proteins, micronutrients, fluids and medications in health and disease.
- e) Administer vaccines available under national programs and optional vaccines.
- f) Conduct common bedside diagnostic procedures like intravenous cannulation, lumbar puncture, bone marrow aspiration, pleural tap, ascitic tap etc.
- g) Provide paediatric basic life support and new born resuscitation where required.
- h) Recognize a sick child, provide ambulatory care, and ensure timely referral
- i) Provide routine new born care

1.2.3 Attitude/Communication:

- a) Communicate adequately, sensitively, effectively, and respectfully with patients, families, and members of the health care system.
- b) Demonstrate the ability to function as a leader and an effective member of the health care team both in the community and the hospital.
- c) Lifelong learner committed to continuous improvement of skills and knowledge and its application in patient care.
- d) Professional who is committed to excellence, is ethical, responsive, and accountable to patients, community, and the profession.

1.2.4 Integration

Pediatric training will be done in integration with other disciplines including Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Forensic Medicine, Otorhinolaryngology, Ophthalmology, Community Medicine, Obstetrics, General Medicine and Surgery.

Reference

Medical Council of India, Competency Based Undergraduate Curriculum for the Indian Medical Graduate, 2018. Vol. 2.

2) Course content- Competency based Curriculum/ Teaching Learning methods/ Assessment

Number	COMPETENCY The student should be able to	Domain K/S/A /C	Level K/KH /SH/P	Suggested Teaching Learning methods	Suggested Assessment methods	Integration
Normal Growth and development						
PE1.1	Define and discuss the factors affecting normal growth and development	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE1.2	Discuss and describe the patterns of growth in infants, children and adolescents	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Assessment of physical growth in infants, children and adolescents	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE1.4	Perform Anthropometric measurements, document in growth charts and interpret	S	P	Small group discussion	Document in Log book	
PE1.5	Define development and discuss the normal developmental mile stones with respect to motor, behavior, social, adaptive and language	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE1.6	Discuss the methods of assessment of development	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE1.7	Perform Developmental assessment and interpret	S	P	Bedside clinics, Skills Lab	Document in Log book	
PE2.1	Discuss the etio-pathogenesis, clinical features and management of a child who fails to thrive	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE2.3	Counselling a parent with failing to thrive child	A/C	SH	OSPE	Document in Log book	AETCOM

PE2.4	Discuss the etio-pathogenesis, clinical features and management of a child with short stature	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE2.5	Assessment of a child with short stature: Elicit history, perform examination, document and present	S	SH	Bedside clinics, Skill lab	Skill Assessment	
PE2.6	Enumerate the referral criteria for growth related problems	K	K	Small group discussion	Written/ Viva voce	
Topic: Common problems related to Development -1 (Developmental delay, Cerebral palsy)						
PE3.1	Define, enumerate and discuss the causes of developmental delay and disability including intellectual disability in children	K	K	Lecture, Small group discussion	Written/ Viva voce	



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Paediatrics

MBBS Curriculum

6

PE3.2	Discuss the approach to a child with developmental delay	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE3.3	Assessment of a child with developmental delay - Elicit document and present history	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE3.4	Counsel a parent of a child with developmental delay	S	SH	DOAP session	Document i n Log Book	
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE3.6	Discuss the referral criteria for children with developmental delay	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE3.7	Visit a Child Developmental Unit and observe its functioning	S	KH	Lecture, Small group discussion	Log book Entry	Community Medicine
PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Lecture, Small group, Bedside clinics	Written/ Viva voce	Physical Medicine & Rehabilitation
PE4.1	Discuss the causes and approach to a child with scholastic backwardness	K	K	Lecture, Small group discussion	Written	
PE4.2	Discuss the etiology, clinical features, diagnosis and management of a child with Learning Disabilities	K	K	Lecture, Small group discussion	Written	
PE4.3	Discuss the etiology, clinical features, diagnosis and management of a child with Attention Deficit Hyperactivity Disorder (ADHD)	K	K	Lecture, Small group discussion	Written	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE4.4	Discuss the etiology, clinical features, diagnosis and management of a child with Autism	K	K	Lecture, Small group discussion	Written	
PE5.1	Describe the clinical features, diagnosis and management of thumb sucking	K	K	Lecture, Small group discussion	Written	
PE5.2	Describe the clinical features, diagnosis and management of Feeding problems	K	K	Lecture, Small group discussion	Written	
PE5.3	Describe the clinical features, diagnosis and management of nail biting	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE6.2	Describe the physical, physiological and psychological changes during adolescence (Puberty)	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Paediatrics

MBBS Curriculum

7

PE6.3	Discuss the general health problems during adolescence	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE6.4	Describe adolescent sexuality and common problems related to it	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE6.5	Explain the Adolescent Nutrition and common nutritional problems	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE6.6	Discuss the common Adolescent eating disorders (Anorexia Nervosa, Bulimia)	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE6.7	Describe the common mental health problems during adolescence	K	KH	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE6.8	Respecting patient privacy and maintaining confidentiality while dealing with adolescence	A	SH	Bedsid e clinics	Document i n log book	AETCOM
PE6.9	Perform routine Adolescent Health check-up including eliciting history, performing examination including SMR (Sexual Maturity Rating), growth assessments (using Growth charts) and systemic exam including thyroid and Breast exam and the HEADSS screening	S	SH	Bedsid e clinics	Skills station	
PE6.10	Discuss the objectives and functions of AFHS (Adolescent Friendly Health Services) and the referral criteria	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE6.11	Visit to the Adolescent Clinic	S	KH	DOAP session	Document in Log Book	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE6.1 2	Enumerate the importance of obesity and other NCD in adolescents	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE6.1 3	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	Lecture, Small group discussion	Written/ Viva voce	Psychiatry
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	Lecture, Small group discussion	Viva	Obstetrics & Gynaecology
PE7.2	Explain the physiology of lactation	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and Human milk	K	KH	Lecture, debate	Written/ Viva voce	Physiology
PE7.4	Discuss the advantages of breast milk	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE7.5	Observe the correct technique of breast feeding and distinguish right from wrong techniques	S	P	Bedside clinics, Skills lab	Skill Assessment	



MBBS Curriculum

PE7.6	Enumerate the baby friendly hospital initiatives	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Bedside clinics, Skill Lab	Skill Assessment	Obstetrics & Gynecology, AETCOM
PE7.8	Educate mothers on antenatal breast care and prepare mothers for lactation	A/C	SH	DOAP session	Document in Log Book	AETCOM
PE7.9	Educate and counsel mothers for best practices in Breast feeding	A/C	SH	DOAP session	Document in Log Book	Obstetrics & Gynaecology, AETCOM
PE7.10	Respects patient privacy	A	SH	DOAP session	Document in Log Book	AETCOM
PE7.11	Participate in Breast Feeding Week Celebration	A	SH	DOAP session	Document in Log Book	
Topic: Complementary Feeding						
PE8.1	Define the term Complementary Feeding	K	K	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE8.2	Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE8.3	Enumerate the common complimentary foods	K	K	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Bedside clinics, Skills lab	Skill Assessment	Community Medicine
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	DOAP session	Document in Log Book	Community Medicine

All India Institute of Medical Sciences Madurai (Tamil Nadu)

Topic: Normal nutrition, assessment and monitoring						
PE9.1	Describe the age-related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Biochemistry
PE9.2	Describe the tools and methods for assessment and classification of nutritional status of infants, children and adolescents	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE9.3	Explains the Calorific value of common Indian foods	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE9.4	Elicit document and present an appropriate nutritional history and perform a dietary recall	S	SH	Bedside clinic, Skills lab	Skill Assessment	Community Medicine
PE9.5	Calculate the age-related calorie requirement in Health and Disease and identify gap	S	SH	Bedside clinics, Small	Skill assessment	Community Medicine
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Bedside clinic, small group discussion	Skill Assessment	Community Medicine
PE9.7	Plan an appropriate diet in health and disease	S	SH	Bedside clinic, small group discussion	Document in logbook	Community Medicine
Topic: Provide nutritional support, assessment and monitoring for common nutritional problems						
PE10.1	Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology, Biochemistry

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE10. 2	Outline the clinical approach to a child with SAM and MAM	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology, Biochemistry
PE10. 3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community-based intervention, rehabilitation and prevention	S	SH	Bedside clinics, Skills lab	Skill station	Physiology, Biochemistry
PE10. 4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	DOAP session	Document in log book	Community Medicine
PE10. 5	Counsel parents of children with SAM and MAM	S	SH	Bedside clinic, Skills Station	Document in Log book	AETCOM
PE10. 6	Enumerate the role of locally prepared therapeutic diets and ready to use therapeutic diets	K	K	Lecture, Small group discussion	Written/ Viva voce	
Topic: Obesity in children						
PE11. 1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology, Biochemistry, Pathology
PE11. 2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology , Pathology
PE11. 3	Assessment of a child with obesity with regard to eliciting history including physical activity, charting and dietary recall	S	SH	Bedside clinics, Standardized patients	Document in log book	



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Pediatrics

10

MBBS Curriculum

PE11.4	Examination including calculation of BMI, measurement of waist hip ratio, identifying external markers like acanthosis, striae, pseudogynaecomastia etc	S	SH	Bedside clinics, Standardized patients, Videos	Skills Station	
PE11.5	Calculate BMI, document in BMI chart and interpret	S	P	Bedside clinics, small group discussion	Document in log book	
PE11.6	Discuss criteria for referral	K	K	Small group discussion	Viva voce	
PE12.1	Discuss the RDA, dietary sources of Vitamin A and their role in Health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Bedside clinics, small group discussion	Document in log book	Biochemistry
PE12.4	Diagnose patients with Vitamin A deficiency, classify and plan management	S	SH	Bedside clinics, Skill Station	Document in log book	Biochemistry
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry, Physiology, Pathology

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Bedside clinics, Skills lab	Document in log book	Biochemistry, Physiology, Pathology
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Bedside clinics	Document in log book	Biochemistry, Physiology, Pathology
PE12.10	Discuss the role of screening for Vitamin D deficiency	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry, Physiology, Pathology



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Pediatrics

11

MBBS Curriculum

PE12.14	Describe the causes, clinical features, diagnosis management and prevention of deficiency of Vitamin K	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry, Physiology, Pathology
PE12.15	Discuss the RDA, dietary sources of Vitamin B and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.16	Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Bedside clinics, Skills lab	Document in log book	Biochemistry
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Bedside clinics, Skills lab	Document in log book	Biochemistry
PE12.19	Discuss the RDA, dietary sources of role in Health and disease	Vitamin C and their	K	KH	Lecture, Small group discussion	Biochemistry
PE12.20	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin C (scurvy)	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE12.21	Identify the clinical features of Vitamin C deficiency	S	SH	Bedside clinics, Skill lab	Document in log book	Biochemistry
Topic: Micronutrients in Health and disease -2: Iron, Iodine, Calcium, Magnesium						
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Pathology, Biochemistry
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pathology, Biochemistry
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Bedside clinics, Skills lab	Document in log book	Pathology, Biochemistry

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE13.4	Interpret hemogram and Iron Panel		S	SH	Bedside clinic, small group discussion	
PE13.5	Propose a management plan for Fe deficiency anaemia	S	SH	Bedside clinics, Skills lab	Skill Assessment	Pathology, Pharmacology
PE13.7	Discuss the RDA, dietary sources of Iodine and their role in Health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE13.8	Describe the causes, diagnosis and management of deficiency of Iodine	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	Lecture, Bedside clinic	Written/ Viva voce	Biochemistry
PE13.10	Discuss the National Goitre Control program and their recommendations	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry, Community Medicine
PE13.11	Discuss the RDA, dietary sources of Calcium and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry



PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE13.13	Discuss the RDA, dietary sources of Magnesium and their role in health and disease	K	K	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	Lecture, Small group discussion	Written/ Viva voce	Biochemistry
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pharmacology
PE14.2	Discuss the risk factors, clinical features, diagnosis and management of Kerosene ingestion	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol poisoning	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pharmacology
PE14.5	Discuss the risk factors, clinical features, diagnosis and management of Oxygen toxicity	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE15.1	Discuss the fluid and electrolyte requirement in health and disease	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE15.2	Discuss the clinical features and complications of fluid and electrolyte imbalance and outline the management	K	KH	Lecture, Small group discussion	Written/ Viva voce	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE15.3	Calculate the fluid and electrolyte requirement in health	S	SH	Bedside clinics, Small group discussion	Skill Assessment	
PE15.4	Interpret electrolyte report	S	SH	Bedside clinics, small group discussion	Skill Assessment	
PE15.5	Calculate fluid and electrolyte imbalance	S	SH	Bedside clinics, small group discussion	Skill Assessment	
PE15.6	Demonstrate the steps of inserting an IV cannula in a model	S	SH	Skills Lab	mannequin	
PE15.7	Demonstrate the steps of inserting an interosseous line in a mannequin	S	SH	Skills Lab	mannequin	
PE16.2	Assess children <2 months using IMNCI Guidelines	S	SH	DOAP session	Document in log Book	
PE16.3	Assess children >2 to 5 years using IMNCI guidelines and Stratify Risk	S	SH	DOAP session	Document in log Book	
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, JSSK mission Indra Dhanush and ICDS	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Debate	Written/ Viva voce	Community Medicine
PE18.1	List and explain the components, plan, outcome of Reproductive Child Health (RCH) program and appraise its monitoring and evaluation	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine Obstetrics & Gynecology

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE18.2	Explain preventive interventions for child survival and safe motherhood	K	KH	Lecture, Small group discussion	Written/ Viva voce	Obstetrics & Gynecology
PE18.6	Perform Postnatal assessment of new born and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Bed side clinics, Skill Lab	Skill Assessment	Community Medicine Obstetrics & Gynecology
PE18.7	Educate and counsel caregivers of children	A	SH	Postnatal ward, standardized patient	Skill Assessment	AETCOM
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Bed side clinics, Skill Lab	Document in log book	Community Medicine Obstetrics & Gynecology
National Programs						
PE19.1	Explain the components of the Universal Immunization Program and the National Immunization Program	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Microbiology, Biochemistry
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Microbiology, Biochemistry
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Microbiology, Biochemistry
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Microbiology, Biochemistry
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, pre-term, organ transplants, those who received blood and blood products,	K	KH	Lecture, Small group discussion	Written/ Viva voce	Community Medicine, Microbiology, Biochemistry

All India Institute of Medical Sciences Madurai (Tamil Nadu)

	splenectomised children, adolescents, travellers					
PE19.6	Assess patient for fitness for immunization and prescribe an age-appropriate immunization schedule	S	P	Out Patient clinics Skills lab	Skill Assessment	



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Paediatrics

MBBS Curriculum

14

PE20.1	Define the common neonatal nomenclatures including the classification and describe the characteristics of a Normal Term Neonate and High-Risk Neonates	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE20.2	Explain the care of a normal neonate	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE20.3	Perform Neonatal resuscitation in a manikin	S	SH	DOAP session	Log book entry of Performance	
PE20.4	Assessment of a normal neonate	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE20.5	Counsel / educate mothers on the care of neonates	A/C	SH	DOAP session	Log book documentation	
PE20.6	Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	DOAP session	Log book entry	Obstetrics & Gynecology
PE20.7	Discuss the etiology, clinical features and management of Birth asphyxia	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE20.8	Discuss the etiology, clinical features and management of respiratory distress in New born including meconium aspiration and transient tachypnoea of new born	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE20.9	Discuss the etiology, clinical features and management of birth injuries	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE20.10	Discuss the etiology, clinical features and management of Haemorrhagic disease of New born	K	KH	Lecture, Small group discussion	Written/ Viva voce	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE21.13	Enumerate the indications for and interpret the written report of Ultra sonogram of KUB	S	SH	Bedside clinics, Skills lab	Log book	Radiodiagnosis
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis, pancreatitis, perforation intussusception, Phimosis, undescended testis, Chordee, hypospadias is, Torsion testis, hernia Hydrocele, Vulval Synechiae	S	SH	Bedside clinics, Skills lab	Log book assessment	General Surgery
PE21.15	Discuss and enumerate the referral criteria for children with genitourinary disorder	S	SH	Bedside clinics, Skills lab	Log book assessment	



All India Institute of Medical Sciences Madurai (Tamil Nadu)

Department of Paediatrics

MBBS Curriculum

15

PE21.16	Counsel / educate a patient for referral appropriately	A/C	SH	DOAP session	Document i n Log book	AETCOM
PE21.17	Describe the etiopathogenesis, grading, clinical features and management of hypertension in children	K	KH	Lecture, Small group discussion	Short notes	
PE22.1	Enumerate the common Rheumatological problems in children. Discuss the clinical approach to recognition and referral of a child with Rheumatological problem	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE22.2	Counsel a patient with Chronic illness	S	SH	Bedsid e clinics Skills lab	Log book	
PE22.3	Describe the diagnosis and management of common vasculitic disorders including Henoch Schonlein Purpura, Kawasaki Disease, SLE, JIA	K	K	Lecture, Small group discussion	Written/ Viva voce	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology , Pathology
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology , Pathology
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology , Pathology
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology , Pathology
PE23.6	Discuss the etio-pathogenesis, clinical features and management of Infective endocarditis in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Physiology, Pathology, Microbiology

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE23. 7	Elicit appropriate history for a cardiac disease, analyse the symptoms e.g. breathlessness, chest pain, tachycardia, feeding difficulty, failing to thrive, reduced urinary output, swelling, syncope, cyanotic spells, Suck rest cycle, frontal swelling in infants. Document and present	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE23. 8	Identify external markers of a cardiac disease e.g. Cyanosis, Clubbing, dependent edema, dental caries, arthritis, erythema rash, chorea, subcutaneous nodules, Oslers	S	SH	Bedside clinics, Skills Lab	Skill Assessment	



सत्यमेव जयते

	node, Janeway lesions and document					
PE23.9	Record pulse, blood pressure, temperature and respiratory rate and interpret as per the age	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE23.10	Perform independent physical examination of the cardiovascular system – look for precordial bulge, pulsations in the precordium, JVP and its significance in children and infants, relevance of percussion in Pediatric examination, Auscultation and other system examination and document	S	SH	Bedside clinics, Skills lab	Skill station	
PE23.11	Develop a treatment plan and prescribe appropriate drugs including fluids in cardiac diseases, anti-failure drugs, and inotropic agents	S	SH	Bedside clinics, Skills lab	log book	
PE23.12	Interpret a chest X ray and recognize Cardiomegaly	S	SH	Bedside clinics, Skills lab	Log book entry	Radiodiagnoses
PE23.13	Choose and Interpret blood reports in Cardiac illness	S	P	Bedside clinics, Small group discussion	Log book entry	
PE23.14	Interpret Pediatric ECG	S	SH	Bedside clinics, Skills lab	Log book entry	
PE23.15	Use the ECHO reports in management of cases	S	SH	Bedside clinics	Log book entry	Radiodiagnoses
PE23.16	Discuss the indications and limitations of Cardiac catheterization	K	K	Small group discussion	Viva voce	
PE23.17	Enumerate some common cardiac surgeries like BT shunt, Potts and Waterston's and corrective surgeries	K	K	Small group discussion	Viva voce	
PE23.18	Demonstrate empathy while dealing with children with cardiac diseases in every patient encounter	A	SH	Small group discussion	Document in Log Book	AETCOM

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE24. 1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pathology, Microbiology
PE24. 2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pathology, Microbiology
PE24. 3	Discuss the physiological basis of ORT, types of ORS and the composition of various types of ORS	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE24. 4	Discuss the types of fluid used in Pediatric diarrheal diseases and their composition	K	KH	Lecture, Small group discussion	Written/ Viva voce	



सत्यमेव जयते

PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti-emetics in acute diarrheal diseases	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pharmacology, Microbiology
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
PE24.7	Discuss the causes, clinical presentation and management of chronic diarrhoea in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pharmacology, Microbiology
PE24.9	Elicit, document and present history pertaining to diarrheal diseases	S	SH	Bedside clinics, Skills lab	Skill assessment	
PE24.10	Assess for signs of dehydration, document and present	S	SH	Bedside clinics, Skills lab	Skill assessment	
PE24.11	Apply the IMNCI guidelines in risk stratification of children with diarrheal dehydration and refer	S	SH	Bedside clinics, Skills lab	Document i n Log book	
PE24.15	Perform NG tube insertion in a manikin	S	P	DOAP session	Document i n Log book	
PE24.16	Perform IV cannulation in a model	S	P	DOAP session	Document i n Log book	
PE24.17	Perform Interosseous insertion model	S	P	DOAP session	Document i n Log book	
Topic: Malabsorption						
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in Children and its causes including celiac disease	K	KH	Lecture, Small group discussion	Written/ Viva voce	Pathology
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Lecture, Small group activity	Written/ Viva voce	Pathology, Microbiology

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE26. 2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Lecture, Small group activity	Written/ Viva voce	Pathology, Microbiology
PE26. 3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Lecture, Small group activity	Written/ Viva voce	Pathology, Microbiology
PE26. 4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Lecture, Small group activity	Written/ Viva voce	Pathology
PE26. 5	Elicit document and present the history related to diseases of Gastrointestinal system	S	SH	Bedside clinics, Skills lab	Skills Station	



सत्यमेव जयते

PE26.6	Identify external markers for GI and Liver disorders e.g., Jaundice, Pallor, Gynaecomastia, Spider angioma, Palmar erythema, Ichthyosis, Caput medusa, Clubbing, Failing to thrive, Vitamin A and D deficiency	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE27.16	Assess airway and breathing. Demonstrate the method of positioning of an infant & child to open airway in a simulated environment	S	P	DOAP session, Skills Lab	Skills Assessment	
PE27.17	Assess airway and breathing: administer oxygen using correct technique and appropriate flow rate	S	P	DOAP session, Skills Lab	Skills Assessment	
PE27.18	Assess airway and breathing: perform assisted ventilation by Bag and mask in a simulated environment	S	P	DOAP session, Skills lab	Skills Assessment	
PE27.19	Check for signs of shock i.e. pulse, Blood pressure, CRT	S	P	DOAP session, Skills Lab	Skills Assessment	
PE27.20	Secure an IV access in a simulated environment	S	P	DOAP session, Skills Lab	Skills Assessment	
PF27.21	Choose the type of fluid and calculate the fluid requirement in shock	S	P	DOAP session, Small group activity	Skills Assessment	
PE27.22	Assess level of consciousness & provide emergency treatment to a child with convulsions/coma - Position an unconscious child - Position a child with suspected trauma - Administer IV/per rectal Diazepam for a convulsing child in a simulated environment	S	P	DOAP session, Skills Lab	Skills Assessment	
PE27.23	Assess for signs of severe dehydration	S	P	Bedside clinics, Skills lab	Skill station	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE27.24	Monitoring and maintaining temperature: define hypothermia. Describe the clinical features, complications and management of Hypothermia	K	KH	Lecture, Small group discussion	Written/ Viva voce	



सत्यमेव जयते

PE27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Bedside clinics, skill lab	Skill Assessment	ENT
PE28.10	Perform otoscopic examination of the ear	S	SH	DOAP session	Skills Assessment	ENT
PE28.11	Perform throat examination using tongue depressor	S	SH	DOAP session	Skills Assessment	ENT
PE28.12	Perform examination of the nose	S	SH	DOAP session	Skills Assessment	ENT
PE28.13	Analyse the clinical symptoms and interpret physical findings and make a provisional / differential diagnosis in a child with ENT symptoms	S	SH	Bedside clinics	Skills Assessment	
PE28.14	Develop a treatment plan and document appropriately in a child with upper respiratory symptoms	S	SH	Bedside clinics	Skills Assessment	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE30.16	Discuss the approach to and management of a child with headache	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.17	Elicit document and present an age appropriate history pertaining to the CNS	S	SH	Bedside clinics, Skills lab	Skill Assessment	



सत्यमेव जयते

PE30.18	Demonstrate the correct method for physical examination of CNS including identification of external markers. Document and present clinical findings	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE30.19	Analyse symptoms and interpret physical findings and propose a provisional / differential diagnosis	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE30.20	Interpret and explain the findings in a CSF analysis	S	SH	Small group discussion	Log book	Microbiology
PE30.21	Enumerate the indication and discuss the limitations of EEG, CT, MRI	K	K	Bedside clinics	Log book	
PE30.22	Interpret the reports of EEG, CT, MRI	S	SH	Bedside clinics, Skills lab	Log book	Radiodiagnoses
PE30.23	Perform in a mannequin lumbar puncture. Discuss the indications, contraindication of the procedure	S	SH	Bedside clinics, Skills lab	Skill Assessment	
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Lecture, Small group discussion	Written/ Viva voce	ENT
PE31.2	Recognize the clinical signs of Allergic Rhinitis	S	SH	Bedside clinics' Skill Lab	Skill Assessment	ENT
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in Children	K	KH	Lecture Small group discussion	Written/ Viva voce	ENT
PE30.4	Discuss the etio-pathogenesis, classification, clinical features, and management of Microcephaly in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.5	Enumerate the Neural tube defects. Discuss the causes, clinical features, types, and management of Neural Tube defect	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.6	Discuss the etio-pathogenesis, clinical features, and management of Infantile hemiplegia	K	KH	Lecture, Small group discussion	Written/ Viva voce	

All India Institute of Medical Sciences Madurai (Tamil Nadu)

PE30. 7	Discuss the etio-pathogenesis, clinical features, complications and management of Febrile seizures in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30. 8	Define epilepsy. Discuss the pathogenesis, clinical types, presentation and management of Epilepsy in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	



सत्यमेव जयते

PE30.9	Define status Epilepticus. Discuss the clinical presentation and management	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.10	Discuss the etio-pathogenesis, clinical features and management of Mental retardation in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.11	Discuss the etio-pathogenesis, clinical features and management of children with cerebral palsy	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.12	Enumerate the causes of floppiness in an infant and discuss the clinical features, differential diagnosis and management	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
PE30.14	Discuss the etio-pathogenesis, clinical features and management of Duchene muscular dystrophy	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE30.15	Discuss the etio-pathogenesis, clinical features and management of Ataxia in children	K	KH	Lecture, Small group discussion	Written/ Viva voce	
PE33.9	Perform Sexual Maturity Rating (SMR) and interpret	S	SH	Bedsid e clinics Skills Lab	Skill Assessment	
PE33.10	Recognize precocious and delayed Puberty and refer	S	SH	Bedsid e clinics Skills Lab	log book	
PE33.11	Identify deviations in growth and plan appropriate referral	S	P	Bedsid e clinics Skills Lab	log book	
PE34.1	Discuss the epidemiology, clinical features, clinical types,	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology

All India Institute of Medical Sciences Madurai (Tamil Nadu)

	complications of Tuberculosis in Children and Adolescents					
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology, Community
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology, Community Medicine, Pharmacology
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Bedside clinics, Skill lab	Skill Assessment	



सत्यमेव जयते

PE34.6	Identify a BCG scar	S	P	Bedside clinics, Skills lab	Skill Assessment	Microbiology
PE34.7	Interpret a Mantoux test	S	P	Bedside clinics Skills lab	Skill assessment	Microbiology
PE34.8	Interpret a Chest Radiograph	S	SH	Bedside clinics Skills lab	Skill assessment	Radiodiagnoses
PE34.18	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Dengue, Chikungunya and other vector born diseases	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
PE34.19	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of children with Common Parasitic infections, malaria, leishmaniasis, filariasis, helminthic infestations, amebiasis, giardiasis	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
PE34.20	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Rickettsial diseases	K	KH	Lecture, Small group discussion	Written/ Viva voce	Microbiology
Topic: The role of the physician in the community						
PE35.1	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to health care in children (including parental rights and right to refuse treatment)	K	KH	Small group discussion	Written/ Viva voce	

2. Teaching and learning methods

The teaching methods will include an appropriate mix of didactic lectures, seminars, small group discussions, tutorials, demonstrations, videos, skill lab/simulation/hands-on sessions and bedside clinics. In addition, self-directed learning will be promoted. The students will be encouraged to participate in poster presentations, role play, debate, quiz etc. Participation in various activities of the department as part of Breastfeeding week, Immunization week/day etc. will be encouraged.



3. Teaching schedule

Sl No	Teaching Methods		Teaching Hours
Theory			
1	Lectures		57
	3 rd / 4 th semester		11
	6 th / 7 th semester		25
	8 th / 9 th semester		21
2	Tutorials/ Seminars/ Small Group Teachings/ Integrated Seminars		84
	6 th / 7 th semester		21
	8 th / 9 th semester		63
3	Self -Directed Learning		25
	Total		166
Practical			
	Clinical Posting (3 hours)		
	3 rd / 4 th semester	2 weeks	30
	6 th / 7 th semester	6 weeks (4+2)	90
	8 th / 9 th semester	6 weeks (4+2)	90
	Total		150



4. Semester wise teaching template

4.13rd and 4th semester:

Learning objectives:

- Detailed Pediatric history taking
- Detailed physical examination of children
- Appropriate conduct during history taking and patient examination.
- Understand normal growth and development
- Perform anthropometry and developmental assessment and interpret

Clinical postings

Location: Pediatric OPD/Pediatric ward

9.00 am – 9.30 am: Ward round of allotted beds

Each student will be allotted 2-4 ward beds on the first day of posting. The students are expected to maintain a diary of all the cases admitted on their beds. The student should be acquainted with the diagnosis and day-to-day progress of the child and be present for daily morning rounds.

9.30 am – 12.00 pm: Clinical

case discussion List of

topics to be covered in the

case discussion

	Topics
1	Introduction to Pediatrics
2	History taking in Pediatrics: demography, chief complaints, history of present illness Treatment history, past history
3	Antenatal history, birth history, postnatal history Family history, socioeconomic history
4	Nutrition history, immunization history
5	Developmental history
6	Anthropometry and growth charts

7	Vitals and head to toe examination, signs of vitamin deficiencies
8	Respiratory system examination
9	Cardiovascular system examination
10	Abdominal examination
11	Neurological and musculoskeletal system examination



Department of Pediatrics

MBBS Curriculum

26

12	Evaluation of normal infants for growth and development, and advice regarding nutrition and immunization
13	Internal assessment

Theory classes:

Lectures

1.	Introduction to Pediatrics.
2.	Normal growth
3.	Normal development
4.	Immunization -1
5.	Immunization -2
6.	Anthropometry
7.	Growth charts
8.	Introduction to newborns and the normal newborn baby
9.	Temperature regulation in newborn, hypothermia, cold stress and KMC
10.	Breastfeeding and lactation management

*The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

4.26th and 7th semesters

Learning objectives:

- Analyze symptoms and interpret physical signs to make a provisional/differential diagnosis.
- Develop pattern recognition skills
- Plan appropriate investigations and their interpretation
- Develop appropriate treatment plan
- Counsel and educate parent/child about prevention and treatment
- Enumerate referral criteria and appropriate referral
- Risk stratification using IMNCI guidelines
- Newborn history taking and examination
- Differentiating sick/high risk newborn from a normal newborn

Location: Pediatric OPD/Pediatric ward

9.00 am – 9.30 am: Ward round of allotted beds



Each student will be allotted 2-4 ward beds on the first day of posting. The students are expected to maintain a dairy of all the cases admitted on their beds. The student should be acquainted with the diagnosis and day-to-day progress of the child and be present for daily morning rounds.

9.30 am – 12 pm: Clinical case discussion

List of topics to be covered in the case discussion

	Topics
1.	Pediatric history taking review
2.	Physical examination review
3.	Respiratory system: history taking and examination
4.	Respiratory system: history taking and examination
5.	Cardiovascular system: history taking and examination
6.	Cardiovascular system: history taking and examination
7.	Gastrointestinal system: history taking and examination
8.	Gastrointestinal system: history taking and examination
9.	Neurological system: history taking and examination, localization
10.	Neurological system: history taking and examination, localization
11.	Musculoskeletal system: history taking and examination
12.	Well-baby examination and anticipatory guidance
13.	History taking and examination of an adolescent including SMR staging, HEADSS screening/adolescent clinic
14.	Visit to immunization clinic (Observe components of safe vaccine practice: handling and storing of vaccines, cold chain, patient education/counselling, implied consent, safe injection practices, documentation in immunization record, adverse events following immunization, infection control measures and appropriate handling of sharps, Mantoux test)
15.	Visit to child development clinic/District early intervention center
16.	Newborn history taking
17.	Examination of a normal newborn
18.	Differentiating high risk/sick newborn from normal newborn
19.	Care of normal newborn, correct breastfeeding technique and lactation counselling
20.	Postnatal assessment of newborn and mother, examination for congenital anomalies/malformations, provide advice on routine care of a normal newborn, breastfeeding, temperature maintenance, immunization, complimentary feeding, importance of growth monitoring, red flag signs and family planning

21.	Breast examination and common problems during lactation: retracted nipples, cracked nipples, breast engorgement, breast abscess
22.	Prematurity/LBW/IUGR, assessment of maturity of newborn
23.	Neonatal jaundice



Department of Pediatrics

MBBS Curriculum

28

24.	Visit to the labor room (observing intranatal care, conduct of normal delivery, immediate post- natal care)
25.	Internal assessment exam

*The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

Theory classes

S. No.	Topics	Hours of Teaching	Mode of teaching
1.	Abnormal growth including short stature	1 hr	Lecture
2.	Abnormal development including PDD	1 hr	Lecture
3.	Vitamin deficiency (A&D)	1 hr	Lecture
4.	Micronutrient deficiency	1 hr	Lecture
5.	PEM - 1	1 hr	Lecture
6.	PEM - 2	1 hr	Lecture
8.	Chronic diarrhea	1 hr	Lecture
9.	Malaria	1 hr	Lecture
10.	Enteric fever & Scrub Typhus	1 hr	Lecture
11.	Dengue	1 hr	Lecture
12.	Common bacterial infection in children	1 hr	Lecture
13.	Diphtheria and Pertussis	1 hr	Lecture
14.	Tetanus	1 hr	Lecture
15.	Pneumonia	1 hr	Lecture
16.	Empyema Thoracis	1 hr	Lecture
17.	Wheezing disorders in children	1 hr	Lecture
18.	Approach to URTI / Bronchiolitis	1 hr	Lecture
19.	Leukemia & Lymphoma	1 hr	Lecture
20.	Bleeding and coagulation disorder with special focus on hemophilia	1 hr	Lecture
21.	Immune Thrombocytopenic Purpura	1 hr	Lecture
22.	Hemolytic anemia including Thalassemia	1 hr	Lecture
23.	Gastrointestinal bleed	1 hr	Lecture
24.	Acute liver failure including viral hepatitis	1 hr	Lecture
25.	Chronic liver disease and portal hypertension	1 hr	Lecture

*The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

Learning objectives:

1. Take detailed pediatric history, conduct an appropriate physical and developmental examination of children including neonates, make clinical diagnosis, conduct common bedside procedures, interpret common laboratory investigations and plan and institute therapy.
2. Recognize emergencies including neonatal resuscitation and CPR and care to be instituted and relevant procedures performed.
3. Prepare oral rehydration solution, perform tuberculin test and administer vaccines.
4. Observation of diagnostic and therapeutic procedures such as intravenous access, nasogastric feeding, venesection, pleural tap, ascitic tap, bone marrow aspiration, lumbar puncture, liver and kidney biopsy.

Location: Pediatric OPD/Pediatric ward

9.00 am – 9.30 am: Ward round of allotted beds. Each student will be allotted 2-4 ward beds on the first day of posting. The students are expected to maintain a dairy of all the cases admitted on their beds. The student should be acquainted with the diagnosis and day-to-day progress of the child and be present for daily morning rounds.

9.30 am – 12 pm: Clinical case discussion

List of topics to be covered in the case discussion

Sl. No.	Cases
1.	Short stature/failure to thrive
2.	Severe/moderate acute malnutrition
3.	Obesity
4.	Rickets/Vit A deficiency/other nutritional deficiencies
5.	Acute gastroenteritis/dehydration
6.	Persistent or chronic diarrhea/malabsorption syndromes
7.	Fever ± rash (viral fever, UTI, enteric fever, malaria, measles, varicella etc.) measles, varicella etc.)
8.	Chronic fever (tuberculosis, malignancy, rheumatological disorder etc.)

9.	Upper respiratory problem/stridor
10.	Pneumonia/bronchiolitis/asthma
11.	Pleural effusion/empyema
12.	Rheumatic heart disease/Infective endocarditis
13.	Congestive cardiac failure
14.	Acyanotic congenital heart disease
15.	Cyanotic congenital heart disease



Department of Pediatrics

MBBS Curriculum

30

16.	Cerebral palsy/developmental delay
17.	Hemiplegia/paraparesis
18.	Floppy infant
19.	Epilepsy/febrile seizures
20.	Generalized lymphadenopathy
21.	Hepatosplenomegaly
22.	Anemia/nutritional anemia
23.	Thalassemia/sickle cell anemia
24.	Leukemia/lymphoma
25.	Acute hepatitis/chronic liver disease/portal hypertension
26.	Neonatal/infantile cholestasis
27.	Urinary tract/acute glomerulonephritis/Nephrotic syndrome
28.	Chronic kidney disease
29.	Down's syndrome
30.	Hypothyroidism

*The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

Theory classes

Sl. No	Topics	Hours of teaching	Mode of teaching
1.	Low birth weight babies & Prematurity	1 hr	Lecture
2.	Approach to neonatal respiratory distress (RDS/MAS/TTNB)	1 hr	Lecture
3.	Birth asphyxia including Birth injuries & its management	1 hr	Lecture
4.	Jaundice in the newborn	1 hr	Lecture
5.	Neonatal infections including sepsis	1 hr	Lecture
6.	Neonatal convulsions (Neonatal hypoglycemia, & hypocalcemia)	1 hr	Lecture
7.	Urinary tract infection	1 hr	Lecture
8.	Nephrotic Syndrome	1 hr	Lecture
9.	Nephritis - AGN.	1 hr	Lecture
10.	Congenital Acyanotic Heart Disease	1 hr	Lecture
11.	Congenital Cyanotic Heart Disease	1 hr	Lecture
12.	Rheumatic Heart Disease / Infective endocarditis	1 hr	Lecture
13.	Congestive Cardiac Failure	1 hr	Lecture
14.	Neurodegenerative disease & Neurocutaneous syndromes	1 hr	Lecture
15.	Common genetic disorders - Down and Turners syndrome	1 hr	Lecture
16.	Acute Bacterial Meningitis	1 hr	Lecture

17	Tuberculous meningitis	1 hr	Lecture
18	Pediatric emergencies	1 hr	Lecture
19	Congenital malformations of brain, NTD	1 hr	Lecture
20	Common skin disorders in children	1 hr	Lecture

#The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the paediatrics.



Department of Pediatrics

MBBS Curriculum

31

TOPICS FOR INTEGRATED SEMINARS

6th / 7th / 8th / 9th Semester

Both vertical and horizontal integration will be done depending upon topics.

S.No.	Topic
1.	Genetic counselling
2.	Cerebral Palsy
3.	Convulsions including status epilepticus & its management including AED
4.	Approach to cholestatic jaundice
5.	Shock and anaphylaxis
6.	Short stature
7.	Hypothyroidism (Pediatric & Adult)
8.	Acute Renal failure (Pediatric & Adult)
9.	Tuberculosis (Pediatric & Adult)
10.	Vital Statistics including National programs in pediatrics
11.	Common behavioral disorders in children (ADHD/Autism) and adolescent psychiatry
12.	Approach to child with exanthematous fever
13.	Common surgical emergencies in children
14.	

*The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

**Student seminars (6/7/8/9th sem)**

1.	IMNCI	2 hrs
2.	National Immunization programme /AEFI	2 hrs
3.	Growth charts	2 hrs
4.	Hematopoietic stem cell transplant	2 hrs
5.	IAP immunization schedule / Newer vaccines	2 hrs
6.	Newborn resuscitation	2 hrs
7.	Status asthmaticus	2 hrs
8.	Poisoning in children	2 hrs
9.	Fluid & Electrolyte balance – Common dyselectrolytemia and its management	2 hrs
10.	Developmental Delay	2 hrs

#The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.

Tutorials / small group teachings (6/7/8/9th sem)

1.	Approach to Polyarthritis	2 hrs
2.	Approach to child with fever	2 hrs
3.	Approach to child with shock	2 hrs
4.	Approach to child with coma	2 hrs
5.	Approach to respiratory distress	2 hrs
6.	Approach to anemia	2 hrs
7.	Oxygen delivery systems	2 hrs
8.	Obesity - the new epidemic in children	2 hrs
9.	Approach to IEM	2 hrs
10.	Pediatric solid malignancies	2 hrs

#The above table is just for the sensitizing the students about core topics. The actual topic can vary depending upon the time availability, need of the students and recent advances in the pediatrics.



SKILL LAB sessions

S. No	Skill
1.	Performing anthropometry, plotting in growth charts and interpretation including BMI
2.	Assess patient for fitness for immunization and prescribe an age-appropriate immunization schedule. Educate and counsel a patient for immunization
3.	Perform neonatal resuscitation in a manikin
4.	Provide BLS for children in a manikin
5.	Assessment of airway and breathing: recognizing respiratory distress and failure
6.	Perform assisted ventilation with bag and mask on a manikin
7.	Assessment of circulation and Recognition of shock
8.	Demonstrate the steps of inserting an IV cannula in a manikin
9.	Demonstrate the steps of lumbar puncture in a manikin
10.	Demonstrate the steps of bone marrow aspiration in a manikin

Topics that the student must be familiar with

List of Instruments

Lumbar puncture needle, liver biopsy needle, bone marrow aspiration, intravenous cannula, Ryle's tube, suction catheter, Foley's catheter, face mask, nasal prongs, IV drip set, BT set, self-inflating resuscitation bag with face mask and reservoir, tongue depressor, tuberculin syringe, endotracheal tube, laryngoscope.

Xrays

Pneumonia, Tuberculosis, hilar and parahilar lymphadenopathy, miliary tuberculosis, Congenital Lobar Emphysema, Pleural effusion, Pneumothorax, Normal thymus, congenital heart disease with increased and decreased pulmonary vascularity, cardiomegaly, rickets, scurvy, hemolytic anemia, Skull: sutural separation, enlarged sella and raised intracranial tension, intestinal obstruction, intestinal perforation.

Miscellaneous

Emergency medications, Intravenous fluids, Oral Rehydration Solution, Vaccines



5. Reading books

Sr. No.	Suggested reading for books undergraduates	Author	Publisher
1	Clinical methods in pediatrics. Revised third Edition	Piyush Gupta.	CBS
2	Care of newborn. Revised eighth edition	Meherban Singh	CBS
3	Ghai essential pediatrics	Vinod K Paul Arvind Bagga	CBS
4	Textbook of pediatrics	Piyush Gupta	CBS

Reference books

Sr. No.	Suggested reference reading books undergraduates	Author	Publisher
1	The Harriet Lane handbook: first south Asia edition	Cameron, Johnl., Kahl, Lauren	Elsevier
2	Nelson pediatric symptom-based diagnosis, 1 st edition	Kliegman	Elsevier
3	Nelson textbook of pediatrics, 21 st edition	Kliegman	Elsevier
4	Park's pediatric cardiology for practitioners, 6 th edition.	Myung Park	Elsevier
6	Manual of Pediatric emergencies & critical care	Suchitra Ranjit	Paras medical
7	Nutrition & child development	Elizabeth	Paras medical
8	Smith's recognizable patterns of human malformation: 7 th edition	Jones	Elsevier
9	Breastfeeding: a guide for the medical profession, 8 th edition	Lawrence	Elsevier
10	Fanaroff and martin's neonatal-perinatal medicine, 10 th edition	Martin	Elsevier
11	Forfar & Arneil textbook of pediatrics, international edition: 7 th edition	Mcintosh	Cloudtail india



6. FORMATIVE AND SUMMATIVE ASSESSMENT

The division of marks for Pediatrics will be as follows:

	Theory	Practical	Total
Internal Assessment	100	100	200
Final Professional Examination	100	100	200
Grand Total	200	200	400

Internal Assessment Weightage for final marks calculation will be as follows:

	Theory	Practical
End of 3 rd / 4 th semester		☐
End of 6 th semester	☐	☐
End of 7 th semester	☐	☐
End of 8 th Semester	☐	☐
9 th semester Pre professional examination	☐	☐
Others		Seminars & Department activity- 5 Logbook - 5
Total	100	100

Internal assessment Theory:

There will be three internal assessment theory examinations at the end of sixth, seventh and eighth semester, followed by preprofessional exam at the end of 9th semester. The preprofessional pattern will be similar to final Professional Examination. From preprofessional practical marks, 50 marks will be taken for internal assessment. The remaining fifty marks will be taken from the average of best of 2 out of 3 end semester examinations in a proportionate manner.

Internal assessment Practical:

Internal Assessment (IA) Examination will include practical assessment at the end of each semester clinical posting in 3rd / 4th semester, 6th, 7th, 8th semester followed by



MBBS Curriculum

Preprofessional Clinical assessment in 9th semester. Maintenance of log book carries 5 marks and 5 marks will be given for seminars, participation in the departmental activities and 365-degree formative assessment. From preprofessional practical marks, 50 marks (the original mark will be converted to 50) will be taken for internal assessment. The remaining forty marks will be taken from the average of best of 3 out of 4 end semester practical examinations in a proportionate manner.

Pre-Professional Examination:

The pattern will be similar to final Professional Examination.

Eligibility for Final Professional Examination:

At least 50 marks each in theory and practical in Internal Assessment and minimum 75% attendance in theory and 80% in overall clinical postings.

**MBBS Curriculum****Final****Professional****Examination****Theory paper**

Duration of the theory paper shall be 3 hours. Total marks in final examination shall be 100. The theory paper is divided into three sections A, B and C. Section A contains 20 MCQs which must be completed in the first half an hour of examination. Other two sections have to be answered on separate sheets.

	Section B	Section C
Modules/ Topics included	Vital Statistics Growth and Development Nutrition Immunization Infections Fluid and Electrolytes Neonatology National Programs Social Pediatrics Pediatric Therapeutics	Pediatric Pulmonology Pediatric Gastroenterology and Hepatology Pediatric Cardiology Pediatric Neurology Pediatric Hemat oncology Pediatric Nephrology Pediatric Rheumatology-Immunology Pediatric Endocrinology Pediatric Dermatology Pediatric Genetics Pediatric Emergencies and Critical Care Pediatric Surgery

Mark distribution:

	Theory- 100 marks	Practical- 100 marks
Final Professional Examination Total Marks- 200	Section A- 20 MCQ Section B- 1 LAQ, 6 Short notes Section C- 1 LAQ, 6 Short notes	1 Long case 1 Short case 1 Newborn
		OSCE 5 stations Viva voce – 4 stations



Department of Pediatrics

MBBS Curriculum

38

Section A will have 20 MCQs

Section B will have 1 structured long question and 6 short notes.

The duration of this section will be 75 minutes.

Section C will have Section B will have 1 structured long question and 6 short notes. The duration of this section will be 75 minutes.

Section A	MCQs	20	20 marks
Section B	Long question	1	10 marks
	Short note	6	30 marks
Section C	Long question	1	10 marks
	Short note	6	30 marks
Total			100 marks

Practicals

Long case	30 marks
Short case	15 marks
New born	15 marks
OSCE (5 Stations)	20 marks
Viva voce (4 stations)	20 marks
Nutrition	
Drugs and vaccination Instruments	
Radiology	
Total	100 marks



MBBS Curriculum

Total marks in final clinical examination shall be 100. The practical examination will be held over 2 to 4 days, 25 students each day.

Passing Criteria:

At least 50 marks each in theory and practical in Final Professional Examination; and at least 100 marks each in theory and practical in combined grand total.

Department of Pediatrics

MBBS Curriculum

1. Model question paper

Total marks -100

Duration – 3 hours

MCQs- $20 \times 1 = 20$
marks

SECTION A

1. Investigation of choice for hydrocephalus in infants

- a. Cranial USG
- b. CT scan
- c. MRI
- d. Xray skull

2. Most common cause of ventriculomegaly in fetus

- a. Arnold chiari malformation
- b. Dandy Walker malformation
- c. Aqueductal stenosis
- d. None of the above

3. Ebstein anomaly is associated with
which of the following arrhythmia

- a. AV block
- b. Ventricular tachycardia
- c. Long QT syndrome
- d. Supraventricular tachycardia



Most common cardiac anomaly in Digeorge syndrome

- a. VSD
 - b. ASD
 - c. TOF
 - d. TGA
5. Arnold Chiari malformation all are true except
- a. Syringomyelia
 - b. cystic expansion of 4th ventricles
 - c. Hydrocephalus
 - d. Meningomyelocele
 - e. Lisch nodule is seen in
 - f. Tuberous sclerosis
 - g. Sturge Weber syndrome
 - h. Neurofibromatosis
 - i. Wilson disease
6. Intracranial bleeds in preterm babies occur in
- a. Germinal matrix
 - b. corpus callosum
 - c. Basal ganglia
 - d. Choroid plexus
7. Key features of kangaroo mother care are all except
- a. Skin to skin contact
 - b. Exclusive breast feeding
 - c. Done for babies with cyanosis
 - d. Initiated in a facility & continued at home

8. Asymmetrical Moro's is indicative of

- a. HIE
- b. Kernicterus
- c. Preterm
- d. Erb's palsy

9. Bag and mask resuscitation is contraindicated in newborn with clinical suspicion of

- a. Meconium aspiration
- b. Birth asphyxia
- c. Diaphragmatic hernia
- d. Pneumothorax

10. A 3 hour preterm baby develops respiratory grunt and Xray shows reticulonodular pattern. Diagnosis is

- a. Hyaline membrane disease
- b. Transient tachypnea of newborn
- c. Meconium aspiration syndrome
- d. All of the above

11. Lecithin/ Sphingomyelin ration is done to assess the maturity of

- a. Lung
- b. Brain
- c. Heart
- d. Kidney

12. Which of the following will favour the diagnosis of RDS in newborn
- a. Occurs in term gestation
 - b. Air bronchogram
 - c. manifests after 6 hrs of life
 - d. Antenatal steroids given
13. Which mechanism in phototherapy is chiefly responsible for reduction in serum bilirubin
- a. Photo oxidation
 - b. Photo isomerization
 - c. Structural isomerisation
 - d. Conjugation
14. Indication for surgery in Necrotising enterocolitis is
- a. Pneumatosis intestinal
 - b. Pneumoperitoneum
 - c. Portal vein gas
 - d. Peritonitis
15. Ist permanent teeth to appear:
- a. Molar
 - b. Premolar
 - c. Incisor
 - d. Canine

16. Mature pincer grasp occurs by months of life
- a. 6
 - b. 7
 - c. 4
 - d. 12
17. An antenatal mother at 32 weeks of gestation is found to have inverted nipples. What step next
- a. Reassure
 - b. Syringing technique to be started immediately
 - c. Syringing technique to be advised after baby is born
 - d. Start bottle feed as soon as the baby is born
18. True about constitutional growth delay is/are
- a. Normal length and weight at birth
 - b. Catch up growth at 6 -12 months
 - c. Height velocity assume normal rate at 2-3 years
 - d. Bone age greater than chronological age
19. Anterior fontanel is located between which 2 bones?
- a. Frontal and occipital
 - b. Frontal and parietal
 - c. Parietal and occipital
 - d. Frontal and zygomatic

SECTION B

For section B and C

Write the answers in

separate answer booklet The

duration for each section is

75 minutes

I. Long question (1*10= 10)

1. 10-year boy was brought to the emergency room with history of high-grade fever with myalgia for 4 days since morning, his fever spikes had decreased but he had pain abdomen, vomiting. On examination, child was lethargic with toxic appearance, HR 142/min, RR 34/min, BP 70/50 mm Hg with cool peripheries and tender hepatomegaly.

- a) What is your diagnosis? (2)
- b) What are the investigations to confirm diagnosis? (2)
- c) How will you manage this child? (6)

II. Short answer questions (6*5= 30)

1. Nutritional Recovery Syndrome
2. Growth charts
3. Respiratory distress syndrome of newborn
4. Vitamin A deficiency
5. Cold chain
6. Laws of development

SECTION C

I. Long question (1*10= 10)

1. 2-year girl admitted with complains of low-grade fever for 2 weeks followed by lethargy and poor feeding. History of projectile vomiting with altered sensorium for 2 days. On examination, child is drowsy, responding to painful stimuli by posturing, neck rigidity present with paucity of movements in right upper and lower limbs. CT brain shows basal exudates with communicating hydrocephalus.

- a) What is the clinical diagnosis and how will you confirm it? (2+2)
- b) What is the treatment? (4)
- c) What are the complications of this condition? (2)

II. Short answer questions (6*5= 30)

- 1. Persistent diarrhoea
- 2. Management of cyanotic spells
- 3. Status asthmaticus
- 4. Scorpion sting treatment
- 5. Indications for bone marrow in children
- 6. Early indicators of Cerebral palsy



सत्यमेव जयते

All India Institute of Medical Sciences, Madurai

**Department
of
Dermatology,
Venereology and
Leprosy**

Undergraduate CURRICULUM

DEPARTMENT OF DERMATOLOGY VENERELOGY AND LEPROLOGY

Vision

The Department of Dermatology of AIIMS Madurai was started on 16.10.2023. It currently has two faculty members, one Associate and one Assistant professor. Our department envisions the following in the next 5 years.

1. Expansion of department to start OPD and IPD services for which we need atleast four faculty and a 20 bedded ward.
2. The department envisages to have its own ICU to manage critically ill patients with acute skin failure and barrier/reverse barrier units.
3. To start Post Graduate programme in the department
4. The department envisions to create subspecialty clinics viz Allergy clinic, Bullous disorder clinic, Dermatotomy clinic, connective tissue disorder clinic and Psoriasis clinic.
5. Training of faculty for skill development, Medical Education, administration, and research at the time of joining and periodical training in the dermatological advancements
6. Continuous learning by organizing/attending CMEs, workshops, and conferences.
7. Developing an aptitude and an environment that is conducive for research at the UG, PG and faculty levels.

Mission

1. To provide the highest quality and standard of clinical care to our patients.
2. To train M.B.B.S students to deliver efficient first contact dermatological care
3. To train postgraduate students & senior residents with the aim of generating future leaders in dermatology.

GOAL

Skin diseases are quite prevalent in the community and a significant proportion of patients attending the OPD services in any hospital present with complaints related to skin. Certain skin diseases can be easily diagnosed and managed at the primary care level with an adequate amount of training at the MBBS level. The institute has designed a comprehensive curriculum for undergraduates in Dermatology, which includes Dermatology, Venereology and Leprosy. The goal of the curriculum is to train the candidates to efficiently diagnose and manage common skin diseases through knowledge, skills and attitudes acquired during their training.

OBJECTIVES

Knowledge

At the end of the training, a candidate should be able to

1. Diagnose and manage common skin diseases, sexually transmitted diseases, and leprosy.
2. To diagnose and manage common medical emergencies related to skin diseases, leprosy, and sexually transmitted diseases.
3. To familiarize them with the common laboratory diagnostic skills which help in the confirmation of diagnosis.
4. To train them for preventive measures at individual and community level against communicable skin diseases including sexually transmitted diseases and leprosy.

Attitude

1. To develop cultural competence and an empathetic attitude towards the patients and their attendants.
2. To demonstrate communication skills to establish effective communication with patients, relatives, public, and the scientific community.

Skills

1. History taking in dermatology, sexually transmitted diseases, and leprosy.
2. Clinical examination and description of cutaneous findings in a systematic way in dermatology, sexually transmitted diseases, and leprosy.
3. To be able to diagnose and manage common dermatological diseases encountered by a clinician on a day to day practice which includes infections and infestations.
4. To have an overview on the approach to management of common skin diseases, sexually transmitted diseases, and leprosy.
5. Systemic examination in relation to dermatologic diseases.
6. To develop skills in performing and interpreting basic bedside laboratory tests which help in the diagnosis of skin diseases.

COURSE CONTENT

During the MBBS training, the students have a comprehensive teaching in dermatology, sexually transmitted diseases, and leprosy in their 5th, 6th and 7th semester training period.

1. Structure and functions of skin, hair and nails.
2. Principles of diagnosis in dermatology
3. Infective dermatoses: Bacterial infections including tuberculosis, Viral and fungal infections - Etiology, Clinical features, Diagnosis and Treatment.
4. Infestations: Scabies and pediculosis – Etiology, Clinical features, Diagnosis and Treatment.
5. Melanin synthesis: Disorders of pigmentation (Vitiligo, Chloasma / Melasma)- Etiology, Clinical features, Diagnosis and Treatment.
6. Eczemas: Endogenous and Exogenous eczema – Etiology, Clinical features, Diagnosis and Treatment.
7. Drug eruptions, urticaria, angioedema, erythema multiforme, Steven's Johnson syndrome and toxic epidermal necrolysis – Etiology, Clinical features, Diagnosis and Treatment.
8. Vesiculo-bullous diseases: Pemphigus, Pemphigoid, Dermatitis herpetiformis – Etiology, Clinical features, Diagnosis and Treatment.
9. Papulosquamous Disorders: Psoriasis, Pityriasis rosea – Etiology, Clinical features, Diagnosis and Treatment.

10. Lichen planus - Etiology, Clinical features, Diagnosis and Treatment.
11. Acne vulgaris and Rosacea: etiopathogenesis, clinical features, diagnosis and treatment
12. Disorders of Hair – structure of hair follicle, hair cycle, causes, clinical features, diagnosis and management of alopecia
13. Hereditary disorders: Ichthyosis, Albinism, Epidermolysis bullosa, Neurofibromatosis, Tuberous sclerosis
14. Dermatological Emergencies and acute skin failure – causes, clinical features and management
15. Connective tissue diseases: Cutaneous manifestations of SLE, Systemic sclerosis and Dermatomyositis
16. Topical corticosteroids – classification, mechanism of action, uses, adverse effects
17. Antihistamines - classification, mechanism of action, uses, adverse effects
18. Systemic diseases and skin (Cutaneous manifestations of diabetes mellitus and Thyroid disorders)
19. Nutritional dermatoses (Cutaneous manifestation of Vitamin A, B- complex, C and Zinc)
20. Disorders of Nails – structure of nail unit, nail changes in dermatological and systemic disease
21. Bedside laboratory procedures in dermatology – KOH mount, Gram stain, Tzanck smear, wet mount, oil mount, slit skin smear, skin punch biopsy
22. Phototherapy in dermatology
23. Introduction to dermatosurgery, Lasers, and aesthetic dermatology: electrocautery, cryosurgery, chemical cautery, laser hair reduction
24. Leprosy – classification, pathogenesis, clinical features, reactions, diagnosis, treatment, and control of leprosy.
25. Syphilis – Etiology, Clinical features, Diagnosis and Treatment.
26. Gonococcal and non-gonococcal infections – Etiology, Clinical features, Diagnosis and Treatment.
27. Genital ulcer disease (Chancroid, LGV, Donovanosis, Herpes genitalis)- Etiology, Clinical features, Diagnosis and treatment.
28. Genital warts – Etiology, Clinical features, Diagnosis and treatment.
29. Vaginal and Cervical discharge - Etiology, Clinical features, Diagnosis and treatment.

30. Syndromic approach to the diagnosis and management of sexually transmitted diseases.
31. HIV infection, Cutaneous manifestations of HIV infection and their management.

Clinical Postings

During the third and seventh semesters, the following topics will be covered.

5th. semester – 2 weeks

7th semester – 2 weeks

Total duration of clinical postings – 4 weeks

Sl. no	Topics
1	Introduction to dermatology
2	Bacterial skin infections
3	Fungal skin infections
4	Viral skin infections
5	Scabies; Pediculosis
6	Vitiligo, Melasma
7	Eczemas
8	Vesiculobullous disorders
9	Psoriasis
10	Lichen planus
10	Pityriasis rosea and viral exanthems
11	Drug reactions, Urticaria and Angioedema
12	Acne and Rosacea
13	Genodermatoses
14	Leprosy: Clinical features and spectrum
15	Reactions and treatment of leprosy
16	Syphilis
17	Genital ulcer disease

18	Urethral and Vaginal discharge
19	Syndromic management of sexually transmitted diseases
20	HIV and mucocutaneous manifestations
21	Dermatological emergencies and acute skin failure
22	Side lab procedures/Procedural dermatology

Theory:

During sixth semester one hour/week theory class will be taken for the following topics.

Topics for lectures:

Sl.No.	Topics
1	Introduction: Structure and functions of skin
2	Principles of diagnosis in dermatology
2	Bacterial skin infections
3	Viral skin Infections
4	Fungal skin Infections
5	Scabies and Pediculosis
6	Pigmentary disorders
7	Eczema
8	Blistering disorders
9	Papulosquamous disorders
10	Urticaria and angioedema
11	Drug reactions
12	Acne and Rosacea
13	Hereditary disorders
14	Hair and Nail Disorders

15	Nutritional dermatoses
16	Dermatological emergencies and acute skin failure
17	Collagen vascular disorders
18	Systemic disease and skin
19	Genital ulcer disease
20	Urethral and Vaginal discharge
21	HIV Disease and Mucocutaneous Manifestations
22	Leprosy – Etiopathogenesis, classification and clinical features Management and control
23	Phototherapy and dermatosurgery
24	Topical therapy

Curriculum for undergraduate medical students in Dermatology, Venereology & Leprosy

Sl. No	Topic	Level I, II, III	Domain K/S/A/C	Teaching/ learning methods	Assessment method	Integration	
		Level I- Must know. Level II- Desirable to know. Level III- Nice to know	K=Knowledge S= Skill A=Attitude C=Communication	Lecture/Lecture cum Demonstration/Small group teaching/Clinics	Written/Viva voce/OSCE	Horizontal	Vertical

Introduction

1.	A. Structure and functions of skin B. Description of skin lesions	Level I	K/S	Lecture /clinics	Written		Anatomy

Infective Dermatoses (Etiology, microbiology, clinical features, diagnosis, demonstration of Gram stain & KOH mount, treatment)

1.	Common bacterial infections of skin	Level I	K/S	Lecture/clinics	Written/OSCE		
2.	Viral infections of skin - HSV, Varicella & Herpes Zoster, Viral warts, Molluscum contagiosum	Level I	K/S	Lecture/clinics	Written/OSCE		
3.	Superficial fungal infections of skin	Level I	K/S	Lecture/clinics	Written/OSCE		Microbiology

Infestations (Etiology, natural history, clinical presentation, complications, diagnosis & treatment)

1.	A. Scabies B. Pediculosis	Level I	K/S	Lecture/clinics	Written/OSCE		

Leprosy

1.	Introduction, etiopathogenesis, classification, clinical features, reactions in Leprosy	Level I	K	Lecture/clinics	Written/OSCE		
2.	Approach to clinical diagnosis, treatment, and control of Leprosy	Level I	K/S/C	Lecture/clinics	Written/OSCE	Community Medicine	

Sexually transmitted diseases & HIV

1.	Urethral and Vaginal discharge	Level I	K/S	Lecture/clinics	Written/OSCE		
2.	Genital ulcer disease - Syphilis	Level I	K/S	Lecture/clinics	Written/viva		

3.	Genital ulcer disease - Chancroid, Donovanosis, Herpes progenitalis	Level I	K/S	Lecture/clinics	Written		
4.	Approach to diagnosis and syndromic management of Sexually transmitted diseases	Level I	K/S/C	Lecture/clinics	Written		
5.	HIV- Introduction, cutaneous manifestations of HIV infection	Level I	K/S	Lecture/clinics	Written		
Dermatological Emergencies							
	A. Acute urticaria & Angioedema B. Cutaneous adverse drug reactions - SJS/TEN C. Cellulitis, necrotizing fasciitis D. Erythroderma	Level I	K/S	Lecture/clinics	Written		
Papulosquamous diseases (Etiology, clinical features, diagnosis and treatment options)							
1.	A. Psoriasis B. Lichen planus C. Pityriasis Rosea	Level I	K/S	Lecture/clinics	Written/OSCE		
Disorders of Pigmentation (Etiology, clinical features, diagnosis, and treatment options)							
1.	A. Vitiligo B. Melasma	Level I	K	Lecture/clinics	Written/OSCE		
Allergic Diseases/Eczema (etiology, clinical features, diagnosis, and treatment options)							
1.	A. Atopic Dermatitis B. Contact Dermatitis C. Endogenous eczema	Level I	K	Lecture/clinics	Written		
Acne (etiology, clinical features, diagnosis, and treatment options)							
1.	Acne vulgaris	Level I	K	Lecture/clinics	Written/OSCE		
Vesiculo - bullous diseases (etiology, clinical features, diagnosis, and treatment options)							
1.	A. Pemphigus B. Pemphigoid C. Dermatitis herpetiformis	Level I	K/S	Lecture/clinics	Written		

Hereditary disorders							
1.	A. Ichthyosis B. Epidermolysis bullosa C. Albinism	Level II	K/C	Lecture	Written		
Connective tissue disorders (Pathogenesis, Cutaneous manifestations, investigation and treatment)							
1	A. Systemic lupus erythematosus B. Systemic sclerosis C. Dermatomyositis	Level II	K	Lecture	Written	General Medicine	
Nutritional deficiency (Cutaneous manifestations)							
1	A. Vitamin A B. Vitamin B complex C. Vitamin C D. Zinc E. Copper	Level III	K	Lecture	Written		
Systemic disease and skin (Cutaneous manifestations)							
1	A. Diabetes mellitus B. Hypothyroid and hyperthyroid	Level II	K	Lecture	Written		
Hair and nail disorders							
1	A. Hair disorders	Level I	K/S	Lecture	Written/OSCE		
	B. Nail disorders	Level III	K	Lecture	Written		

INTEGRATED TEACHING

Integrated teaching for MBBS students along with Anatomy, Microbiology, Community Medicine and General Medicine will be taken.

TEACHING LEARNING METHODS:

- Interactive Lectures
- Case discussions
- Integrated Teaching
- Microteaching

TEACHING HOURS

Sl. No.	Teaching Methods	Teaching Hours
1	Lectures	20
2	Integrated teaching	4
3	Total	24
4	Clinical Posting (3 hours)	
	Semester 3 (3 hours X 5 days /week) Semester 7 (3 hours X 6 days /week)	2 weeks 2 weeks

EXAMINATION PATTERN

1. Clinical Assessment: The students go through an internal assessment at the end of their clinical posting (5th and 7th semester) – OSCE

Internal marks: 20

2. Theory Examination: A separate section in the General Medicine paper having the dermatology questions, for the evaluation of theoretical knowledge of candidates in dermatology, sexually transmitted diseases, and leprosy – 6th semester, and 8th semester.

Internal Marks: 15

3. Pre professional and Final examination: The students will have theory (25 marks) and practical examination (20 marks) after completion of the 9th semester along with General medicine Paper II

MARK DISTRIBUTION

Internal assessment		
Semester	Theory	Practical
5 th and 7 th	-	Total: 20 Marks 4 OSCE stations (4x5marks = 20)
6 th and 8 th	Total: 15 Marks 2 Short answer (2x5marks=10) 5 MCQ (5x1 marks=5)	-

Pre-Professional examination (9th semester)	25 Marks 4 Short answer (4x5mark=20) 5 MCQ (5x1 marks=5)	Total: 20 Marks 4 OSCE stations (4x5marks = 20)
Final examination		
	25 Marks 4 Short answer (4x5mark=20) 5 MCQ (5x1 marks=5)	Total: 20 Marks 4 OSCE stations (4x5marks = 20)

Note

1. Eligibility criteria to appear in the final professional exam: Students must score minimum of 50% marks in theory and practicals along with General Medicine and Psychiatry
2. A minimum attendance of 70% in clinical posting is mandatory to appear for Internal Assessment Practical exam (End of posting examination)
3. A minimum of 65% attendance in theory and 70% attendance in clinical postings is mandatory for appearing in Final Professional Exam (Medicine)

System for calculating final internal assessment marks for a professional examination.

Average of all the Internal assessment conducted will be taken

Internal Assessment (IA) Marks:

Theory: 12.5 marks (45 converted to 12.5)

Practical: 10 marks (40 converted to 10)

Preprofessional Examination Marks:

Theory: 12.5 marks (25 converted to 12.5)

Practical: 10 marks (20 converted to 10)

Final Aggregate:**Theory:** 25 marks**Practical:** 20 marks**Calculation Method:****Combine IA and Preprofessional Exam Marks:****Theory:** 12.5 (IA) + 12.5 (Preprofessional) = 25 marks**Practical:** 10 (IA) + 10 (Preprofessional) = 20 marks**BLUE PRINT OF QUESTION PAPER:**

S. No.	Topics	SAQ	MCQ
1	Introduction: Structure and functions of skin, Morphology of skin lesions		1
2	Infective Dermatoses	1	1
3	Infestations	1	1
4	Papulosquamous disorders	1	1
5	Blistering disorders	1	1
6	Pigmentary disorders	1	1
7	Acne	1	1
8	Eczema	1	1
9	Systemic disease and skin		1
10	Hair disorders	1	1
11	Connective tissue disorders	1	1
12	Hereditary disorders		1
13	Dermatological emergencies	1	1
14	Leprosy	1	1
15	Sexually transmitted diseases	1	1
16	HIV		1

MODEL QUESTION PAPER

Multiple choice questions

1. *Hemophilus ducreyi* is the causative agent of
 - A. Hard chancre
 - B. Soft chancre
 - C. Donovanosis
 - D. Non gonococcal urethritis

2. Coarse pits in nails are characteristically present in
 - A. Psoriasis
 - B. Alopecia areata
 - C. Lichen planus
 - D. Vitiligo

3. A 35-year-old male presented with itching and oozing from scalp following hair dye application. How will you confirm the diagnosis?
 - A. Patch test
 - B. History
 - C. Clinical examination
 - D. RAST

4. Pseudo-isomorphic phenomenon is seen in
 - A. Vitiligo
 - B. Psoriasis
 - C. Lichen planus
 - D. Molluscum contagiosum

5. In Ridley's logarithmic scale 3+ denotes
 - A. 10-100 bacilli in an average field
 - B. 1-10 bacilli in an average field
 - C. 1-10 bacilli in 100 field
 - D. 100-1000 in an average field

Short Questions

1. Write in detail about pathogenesis , classification and treatment of vitiligo.
2. Describe slit skin smear procedure and write about reactions in leprosy.
3. What are the stages of syphilis? Describe Etiology, clinical features, investigations and treatment of primary syphilis
4. Write about pathogenesis and treatment of acne vulgaris.

TEXTBOOKS RECOMMENDED

Main book:

1. Textbook of Dermatology, Venereology & Leprosy DM Thappa. 4th edition
2. Illustrated synopsis of dermatology and sexually transmitted diseases by Neena Khanna – 7th edition
3. Handbook of leprosy. W H Jopling 5th edition

Reference materials:

1. Dermatology in General Medicine. Fitzpatrick 9rd edition
2. Rook's Text book of dermatology 9th edition
3. Bolognia's Dermatology 4th edition
4. IAL Textbook of leprosy. Bhushan Kumar 3rd Edition
5. Sexually Transmitted Diseases. Bhushan Kumar 2nd edition
6. IADVL Textbook

DEPARTMENT FACULTY DETAILS:

1. Dr Prabhakaran N, Associate professor, Mobile: 7868023215
2. Dr VinuPriya S, Assistant professor, Mobile – 9952488342

EXTERNAL EXPERT

Dr Malathi M

Additional professor

Department of Dermatology

JIPMER, Puducherry

7373842888

Department of Psychiatry

Under Graduate

CURRICULUM

1. Vision:

The vision for the undergraduate MBBS psychiatry curriculum is to shape empathetic and capable physicians by providing a transformative learning experience. This curriculum seeks to seamlessly blend the latest scientific knowledge, evidence-based practices, and patient-centered care principles. The goal is to equip future medical professionals with not only theoretical foundations but also practical clinical skills, fostering active thinking and engagement. Emphasizing inclusivity and cultural sensitivity, the vision recognizes the diverse nature of human experiences and the influence of sociocultural factors on mental health. The approach involves innovative teaching methods, interdisciplinary collaboration, and experiential learning to instill a commitment to lifelong learning and ethical practice. The ultimate aspiration is to graduate a generation of physicians who, armed with a profound understanding of psychiatry, are dedicated to promoting mental well-being, combating stigma, and contributing significantly to the progress of global mental health care.

2. Mission and Objectives:

1. Comprehensive Education: (Knowledge Domain)
 - Explain etiology (bio-psycho-social model), clinical features, diagnosis and management of common mental disorders including substance use disorders across all

age groups.

- Explain etiology (bio-psycho-social model), clinical features, diagnosis and management of severe mental illnesses.

2. Practical Clinical Exposure: (Skill Domain)

- Diagnose and treat common mental & behavioural disorders in a primary care setting, do preliminary management and appropriate referral.
- Identify severe mental disorders and refer them to appropriate centres.
- Identify alcohol / substance use disorders and refer them to appropriate centres.
- Assess risk for suicide, give psychological first aid and refer appropriately.
- Identify mental disability and advise rehabilitative measures.

3. Cultural Competence:

- Emphasize cultural competence by incorporating diverse perspectives
- Addressing the impact of sociocultural factors on mental health, fostering an inclusive approach.

4. Innovative Teaching Methodologies:

- Implement innovative teaching methodologies to enhance the learning experience, including interactive sessions, case studies, Narrative learning and experiential learning.

5. Ethical Practice and Professionalism: (Ethics and Attitude Domain)

- Demonstrate skill and competence to deal/interact with every patient and their relatives with respect, dignity, and empathy.
- Demonstrate skill and competence to uphold the rights of person with mental illness and disabilities

6. Reducing Stigma: (Attitude domain)

- Equip students with the skills and knowledge to actively contribute to reducing stigma surrounding mental health issues through community engagement and awareness initiatives.

7. Student Support and Well-being:

- Implement support systems for students, emphasizing their mental health and well-being.

3. Syllabus

Name of system/section	List of topics
Psychology	1. Introduction to behavioural psychology a. Definition b. Components c. Applications
	2. Learning a. Components of learning b. Classical conditioning c. Operant conditioning d. Cognitive, social, biological & observational learning e. Application of learning theories
	3. Motivation a. Definition b. Theories of motivation c. Biological & social motivation d. Maslow's hierarchy e. Motivation conflicts & frustration
	4. Emotion a. Theories of emotion b. Type & health impact

	5. Thinking a. Definition of thinking b. Thinking: Images & language c. Problem solving d. Creative thinking
	6. Cognitive Process a. Sensory process b. Memory c. Intelligence
	7. Intelligence a. Theories of intelligence b. Determinants of intelligence c. Assessment of intelligence
	8. Personality a. Definition b. Trait c. Theories of personality d. Assessment
	9. Psychosexual development a. Structural & Topographical theories of mind b. Psycho sexual development c. Ego defense mechanism d. Erikson Stages of Psychosocial development
	10. Doctor-Patient relationship a. Model of doctor patient relationship b. Rapport & empathy c. Transference & counter transference d. Style & components of communication e. Confidentiality in patient encounter f. Communicating bad news g. Basic counselling skill
Psychiatry	11. Introduction to psychiatry & classification of psychiatric disorder a. Normal human behaviour b. Bio-psycho-social model of disorders c. Concept & history of psychiatric disorders d. Classification of psychiatric disorders (ICD & DSM) e. Psychiatry in healthcare- Consultation-Liaison model f. Law & psychiatry (MHCA 17, NDPS, RPWD)
	12. Descriptive psychopathology a. Psychiatric history taking b. Mental status examination

	13. Neuropsychiatry & cognitive disorders a. Bedside assessment of cognition in delirium & dementia b. Causes, clinical features & management of delirium c. Types, clinical features, management of dementia
	14. Substance use disorders a. Medical model & Concept of dependence & harmful use of substances. b. Assessment of substance use disorders (Alcohol, opioids, cannabis, stimulants, tobacco) c. Clinical features & diagnosis of intoxication & withdrawal of substance use disorders d. Management of substance withdrawal e. Management of substance dependence: pharmacological, non-pharmacological & substitution therapy
	15. Schizophrenia & other psychotic disorders a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management e. Psychopharmacological and neuro-modulation therapies
	16. Bipolar affective disorders a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management e. Psychopharmacological and neuro-modulation therapies
	17. Depression a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management e. Psychopharmacological and neuro-modulation therapies

	18. Anxiety Disorders - Clinical features & diagnostic classification - Epidemiology, etiology, course & prognosis - Differential diagnosis - Psychosocial management - Psychopharmacological and neuro-modulation therapies
	19. Obsessive-Compulsive Spectrum Disorder - Clinical features & diagnostic classification - Epidemiology, etiology, course & prognosis - Differential diagnosis - Psychosocial management - Psychopharmacological and neuro-modulation therapies
	20. Psychosomatic & Stress related disorder - Clinical features & diagnostic classification - Epidemiology, etiology, course & prognosis - Differential diagnosis - Psychosocial management - Psychopharmacological and neuro-modulation therapies
	21. Dissociative Disorders - Clinical features & diagnostic classification - Epidemiology, aetiology, course & prognosis - Differential diagnosis - Psychosocial management - Psychopharmacological and neuromodulation therapies
	22. Somatoform Disorders - Clinical features & diagnostic classification - Epidemiology, etiology, course & prognosis - Differential diagnosis - Psychosocial management - Psychopharmacological and neuro-modulation therapies

	23. Eating Disorders a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management e. Psychopharmacological and neuro-modulation therapies
	24. Non-organic sleep disorders a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management including sleep hygiene e. Psychopharmacological and neuro-modulation therapies
	25. Sexual Dysfunctions a. Clinical features & diagnostic classification b. Epidemiology, etiology, course & prognosis c. Differential diagnosis d. Psychosocial management e. Psychopharmacological and neuro-modulation therapies
	26. Disorders of adult personality, behavior a. Clinical features & diagnostic classification b. Differential diagnosis c. Psychosocial management d. Psychopharmacological and neuro-modulation therapies
	27. Psychiatric disorders of childhood & adolescence. a. Intellectual disability: etiology, assessment, classification, behavioural management b. Autism spectrum disorder: concept, clinical features, classification, management c. Specific learning disability: concept, clinical features, assessment d. Hyperkinetic disorder: clinical features, management e. Conduct disorders: clinical features, management

	28. Psychiatric disorders of Elderly. a. Psychosis: etiology, assessment, classification, behavioural management b. Mood disorders: concept, clinical features, classification, management c. Anxiety disorders: concept, clinical features, assessment d. Dementia: clinical features, management e. Psychopharmacology of the elderly
	29. Psychiatric emergencies a. Suicide & self-harm: etiology & risk factors, epidemiology, assessment, crisis management, prevention b. Violent behaviour: etiology & risk factors, assessment, crisis management c. Sexual abuse: assessment, crisis management
	30. Psychotherapies a. Behaviour therapy: overview & application b. Cognitive therapy: concept, overview, indications. c. Supportive therapy: concept & application d. Psychoanalysis: overview e. Group therapy: overview f. Psychoeducation
	31. Biological therapies in psychiatry a. Psychopharmacotherapy b. Management of side effects of psychopharmacotherapy c. Electroconvulsive therapy (ECT)/rTMS/VNS/DBS
	32. Community Psychiatry a. National Programmes/ District Programmes b. National Policy c. Social support schemes for the mentally ill
	33. Reproductive and Perinatal Mental Health a. Premenstrual dysphoria b. Post-menopausal syndrome c. Peri-partum mental health disorders

	34. Forensic Psychiatry a. Criminal Responsibility of the mentally ill b. Testamentary Capacity c. Fitness to stand a trial d. Capacity assessment for admission, advance directives and nominated representatives
	35. Positive Mental Health a. Spirituality, Yoga, Religiousness, Mind-body b. Lifestyle changes, Physical exercise c. Relaxation strategies, Mindfulness, Resilience training d. Recovery path

Note: any additional information can be given as annexure

4. Teaching programme

1. Semester wise teaching hours

Semester	Lecture (hrs)	Seminar, Demonstration, integrated teaching, Tutorial (hrs)	SDL (hrs)	Clinical postings weeks/ Working days/(hrs)
III rd Semester	10			02 weeks/ 10 days/ (30 hrs)
IV th Semester		02 (Integrated lecture in Pharmacology)		
V th semester		01 (Integrated lecture in Forensic Medicine)		02 weeks/ 10 days/ (30 hrs)
VI th Semester	18	03 student symposium		
VII th Semester				02 weeks/ 12days/ (36 hrs)
VIII th Semester	04	02 student symposium	01 (Integrated lecture in CFM)	
Total	32	09 (05- Stu.symp + 04- Int. Lect)		96 hours

2. Teaching Learning Method -Overview

S. No	List of topics	Lecture (Hours)	Tutorial / Seminar / Symposia (Hours)	Integrated teaching (Hours)	Practical / Clinics (Hours)
1	Introduction to Behavioural Psychology	01			
2	Learning & Conditioning	01			
3	Motivation	01			
4	Emotion & application to health	01			
5	Thinking & problem solving	01			
6	Cognitive, Sensory processes & memory	01			
7	Intelligence	01			
8	Psychosexual development	01			
9	Personality	01			
10	Patient doctor relationship	01			01
11	Introduction & classification in Psychiatry	02			02
12	Descriptive psychopathology: History & MSE				09
14	Neurocognitive Disorders	01			03
15	Schizophrenia & other psychotic Disorders	02			12
16	Bipolar affective disorders	01			06

17	Depressive disorders	01			06
18	Anxiety disorders	01			09
19	Obsessive compulsive Spectrum disorders	01			06
20	Psychosomatic and stress- related Disorders	02			06
21	Somatoform and Dissociative Disorders	02			06
22	Alcohol & Substance use disorders	01	01		09
23	Personality disorders		01		03
24	Eating disorders	01			03

S. No	List of topics	Lecture (Hours)	Tutorial/ Seminar/ Symposia (Hours)	Integrated teaching (Hours)	Practical/ Clinics (Hours)
25	Sexual disorders	01			03
26	Non- organic sleep disorders		01		03
27	Child psychiatry		02		06
28	Psychiatric Emergencies	01			
29	Biological therapies in Psychiatry	01		02 (Pharm)	03 (ECT)
30	Psychotherapy: General principles	01			
31	Community Psychiatry			01 (CFM)	
32	Forensic Psychiatry			01 (FMT)	
33	Reproductive and Perinatal Mental Health	01			
34	Mental Health issues in the Elderly	01			
35	Positive Mental Health	01			

Semester wise distribution of topics with competencies and objectives

Psychology- III Semester (Behavioural Science –BS)- 10 Sessions						
C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Introduction to psychology (BS1)						
BS1.1	Define psychology and its principles	K	KH	Y	Interactive Lecture	MCQ/SA
BS1.2	Describe the components of psychology	K	KH	Y	Interactive Lecture	MCQ/SA
BS1.3	Discuss the application of the principles of psychology	K	KH	Y	Interactive Lecture	MCQ/SA
Learning (BS2)						
BS 2.1	Define Learning and describe its component	K	KH	Y	Interactive Lecture	MCQ/SA
BS 2.2	Enumerate the types of learning	K	KH	Y	Interactive Lecture	MCQ/SA
BS 2.3	Describe Classical and Operant conditioning	K	KH	Y	Interactive Lecture	MCQ/SA
BS 2.4	Describe the Cognitive, Social, Biological and Observational Learning theories	K	KH	Y	Interactive Lecture	MCQ/SA
BS 2.5	Discuss the application of Learning Theories	K	KH	Y	Interactive Lecture	MCQ/SA
Motivation (BS3)						
BS 3.1	Define motivation	K	KH	Y	Interactive Lecture	MCQ/SA
BS 3.2	Describe the theories of motivation	K	KH	Y	Interactive Lecture	MCQ/SA
BS 3.3	Discuss the principles of biological and social motivation	K	KH	Y	Interactive Lecture	MCQ/SA
BS 3.4	Describe the stages of Maslow's Hierarchy of needs	K	KH	Y	Interactive Lecture	MCQ/SA
BS 3.5	Discuss role of conflicts and frustration in motivation	K	KH	Y	Interactive Lecture	MCQ/SA
Emotion (BS4)						
BS 4.1	Define emotion	K	KH	Y	Interactive Lecture	MCQ/SA
BS 4.2	Discuss the different types of emotions	K	KH	Y	Interactive Lecture	MCQ/SA
BS 4.3	Describe the theories of emotion	K	KH	Y	Interactive Lecture	MCQ/SA
BS 4.4	Discuss the impact of emotion on health and wellbeing	K	KH	Y	Interactive Lecture	MCQ/SA
Thinking (BS5)						
BS 5.1	Define thinking	K	KH	Y	Interactive Lecture	MCQ/SA
BS 5.2	Describe the role of Images and Language in thinking	K	KH	Y	Interactive Lecture	MCQ/SA
BS 5.3	Describe the process of Problem solving	K	KH	Y	Interactive Lecture	MCQ/SA
BS 5.4	Discuss creative thinking	K	KH	Y	Interactive Lecture	MCQ/SA
Cognitive Process (BS6)						
BS 6.1	Define cognition and cognitive process	K	KH	Y	Interactive Lecture	MCQ/SA

BS 6.2	Describe sensory process	K	KH	Y	Interactive Lecture	MCQ/SA
BS 6.3	Describe the types of memory	K	KH	Y	Interactive Lecture	MCQ/SA
BS 6.4	Describe the neurobiological basis of memory	K	KH	Y	Interactive Lecture	MCQ/SA
BS 6.5	Describe the principles of forgetting	K	KH	Y	Interactive Lecture	MCQ/SA
Intelligence (BS7)						
BS 7.1	Define Intelligence	K	KH	Y	Interactive Lecture	MCQ/SA
BS 7.2	Describe the types of intelligence	K	KH	Y	Interactive Lecture	MCQ/SA
BS 7.3	Describe the theories of intelligence	K	KH	Y	Interactive Lecture	MCQ/SA
BS 7.4	Discuss the determinants of intelligence	K	KH	Y	Interactive Lecture	MCQ/SA
BS 7.5	Describe the methods of assessment of intelligence	K	KH	Y	Interactive Lecture	MCQ/SA

C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Psychosexual Development (BS8)						
BS 8.1	Describe structural theory of mind	K	KH	Y	Interactive Lecture	MCQ/SA
BS 8.2	Describe the topographical theory of mind	K	KH	Y	Interactive Lecture	MCQ/SA
BS 8.3	Discuss psychosexual stages of development	K	KH	Y	Interactive Lecture	MCQ/SA
BS 8.4	Classify and describe Ego defense mechanism	K	KH	Y	Interactive Lecture	MCQ/SA
BS 8.5	Describe Erikson's stages of Psychosocial development	K	KH	Y	Interactive Lecture	MCQ/SA
Personality Development (BS9)						
BS 9.1	Define temperament, character and personality	K	KH	Y	Interactive Lecture	MCQ/SA
BS 9.2	Describe the theories of personality	K	KH	Y	Interactive Lecture	MCQ/SA
BS 9.3	Classify and describe the types of personality	K	KH	Y	Interactive Lecture	MCQ/SA
BS 9.4	Describe the role of personality in mental illness	K	KH	Y	Interactive Lecture	MCQ/SA
BS 9.5	Describe the methods of assessment of personality	K	KH	Y	Interactive Lecture	MCQ/SA
Doctor- Patient Relationship (BS10)						
BS10.1	Describe the models of doctor-patient relationship	K	KH	Y	Interactive Lecture	MCQ/SA
BS10.2	Define rapport and empathy	K	KH	Y	Interactive Lecture	MCQ/SA
BS10.3	Discuss the role of transference and counter-transference in doctor-patient relationship	K	KH	Y	Interactive Lecture	MCQ/SA
BS10.4	Describe the components of communication and styles	K	KH	Y	Interactive Lecture	MCQ/SA
BS10.5	Discuss role of confidentiality in patient counter	K	KH	Y	Interactive Lecture	MCQ/SA

BS10.6	Describe the steps involved in breaking a bad news	K	KH	Y	Interactive Lecture	MCQ/SA
BS10.7	Describe the components of basic counselling skill	K	KH	Y	Interactive Lecture	MCQ/SA

Psychiatry- VI Semester (Core Psychiatry- CP)- 21 sessions						
C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Introduction to Psychiatry (CP1)						
CP 1.1	Define & distinguish Mental Health, mental illness, Normality and abnormality	K	KH	Y	Interactive Lecture	MCQ/SA
CP 1.2	Describe the growth of psychiatry as a medical specialty, its history and contribution to society	K	KH	Y	Interactive Lecture	MCQ/SA
CP 1.3	Describe the Bio-psycho-Social origins of mental illnesses	K	KH	Y	Interactive Lecture	MCQ/SA
CP 1.4	Describe the historical aspects of treatment of mental illnesses	K	KH	Y	Interactive Lecture	MCQ/SA
CP 1.5	Discuss the laws governing treatment of persons with mental illnesses (MHCA2017, NDPS, RPWD)	K	KH	Y	Interactive Lecture	MCQ/SA
Classification of Psychiatric disorders (CP2)						
CP 2.1	Distinguish between organic and functional psychiatric disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 2.2	Distinguish between neurosis and psychosis	K	KH	Y	Interactive Lecture	MCQ/SA
CP 2.3	Discuss the classification system for psychiatric disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 2.4	Role of psychiatry in healthcare- Consultation- liaison model	K	KH	Y	Interactive Lecture	MCQ/SA
Neurocognitive Disorders (CP3)						
CP 3.1	Enumerate and describe common neurocognitive disorders, magnitude, etiology and clinical features	K	KH	Y	Interactive Lecture	MCQ/SA
CP 3.2	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 3.3	Classify and describe the magnitude, etiology, clinical features and management of Delirium	K	KH	Y	Interactive Lecture	MCQ/SA
CP 3.4	Classify and describe the magnitude, etiology, clinical features and management of Dementia	K	KH	Y	Interactive Lecture	MCQ/SA
Alcohol Use Disorders (CP4)						
CP 4.1	Describe the magnitude and etiology of alcohol use disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 4.2	Describe the clinical features of alcohol intoxication and withdrawal and treatment of alcohol use disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP 4.3	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of alcohol use disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 4.4	Enumerate the appropriate conditions for specialist referral in patients with alcohol use disorders	K	K	Y	Interactive Lecture	MCQ/SA
Substance Use Disorders (CP5)- Opioid, cannabis, tobacco, Stimulants, Hallucinogens						
CP 5.1	Describe the magnitude and etiology of Substance use disorders	K	KH	Y	Student symposium	MCQ/SA
CP 5.2	Describe the clinical features of Substance intoxication and withdrawal and treatment of substance use disorders including behavioural and pharmacologic therapy	K	KH	Y	Student symposium	MCQ/SA
CP	Enumerate and describe the pharmacologic basis and side effects of	K	KH	Y	Student symposium	MCQ/SA

5.3	drugs used in treatment of Substance use disorders					
CP 5.4	Enumerate the appropriate conditions for specialist referral in patients with substance use disorders	K	K	Y	Student symposium	MCQ/SA
Schizophrenia (CP6)						
CP 6.1	Classify and describe the magnitude and etiology of schizophrenia	K	KH	Y	Interactive Lecture	MCQ/SA
CP 6.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Schizophrenia	K	KH	Y	Interactive Lecture	MCQ/SA
CP 6.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP 6.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of schizophrenia	K	KH	Y	Interactive Lecture	MCQ/SA
CP 6.5	Enumerate the appropriate conditions for specialist referral in patients with psychotic disorders	K	K	Y	Interactive Lecture	MCQ/SA
Other Psychotic disorders (CP7)						
CP 7.1	Classify and describe the magnitude and etiology of other psychotic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 7.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of other psychotic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 7.3	Describe the treatment of psychotic disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP 7.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of other psychotic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 7.5	Enumerate the appropriate conditions for specialist referral in patients with psychotic disorders	K	K	Y	Interactive Lecture	MCQ/SA

C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Depressive Disorders (CP8)						
CP 8.1	Classify and describe the magnitude and etiology of depressive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 8.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Depressive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 8.3	Describe the treatment of depressive disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP 8.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of depressive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 8.5	Enumerate the appropriate conditions for specialist referral in patients with depressive disorders	K	K	Y	Interactive Lecture	MCQ/SA
Bipolar Affective Disorders (CP9)						
CP 9.1	Classify and describe the magnitude and etiology of bipolar affective disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 9.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Bipolar affective disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 9.3	Describe the treatment of bipolar affective disorders including behavioural and	K	KH	Y	Interactive Lecture	MCQ/SA

	pharmacologic therapy					
CP 9.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of bipolar affective disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP 9.5	Enumerate the appropriate conditions for specialist referral in patients with bipolar affective disorders	K	K	Y	Interactive Lecture	MCQ/SA
Anxiety disorders (CP10)						
CP10.1	Classify and describe the magnitude and etiology of anxiety disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP10.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Anxiety disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP10.3	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP10.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of anxiety disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP10.5	Enumerate the appropriate conditions for specialist referral in patients with anxiety disorders	K	K	Y	Interactive Lecture	MCQ/SA
Obsessive Compulsive disorders (CP11)						
CP11.1	Classify and describe the magnitude and etiology of Obsessive Compulsive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP11.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Obsessive Compulsive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP11.3	Describe the treatment of Obsessive Compulsive disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP11.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Obsessive Compulsive disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP11.5	Enumerate the appropriate conditions for specialist referral in patients with Obsessive Compulsive disorders	K	K	Y	Interactive Lecture	MCQ/SA
Psychosomatic disorders (CP12)						
CP12.1	Classify and describe the magnitude and etiology of Psychosomatic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP12.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Psychosomatic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP12.3	Describe the treatment of Psychosomatic disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP12.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Psychosomatic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP12.5	Enumerate the appropriate conditions for specialist referral in patients with Psychosomatic disorders	K	K	Y	Interactive Lecture	MCQ/SA
Stress related disorders (CP13)						
CP13.1	Classify and describe the magnitude and etiology of Stress related disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP13.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Stress related disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP13.3	Describe the treatment of Stress related disorders including behavioural and	K	KH	Y	Interactive Lecture	MCQ/SA

	pharmacologic therapy					
CP13.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Stress related disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP13.5	Enumerate the appropriate conditions for specialist referral in patients with Stress related disorders	K	K	Y	Interactive Lecture	MCQ/SA

C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Dissociative disorders (CP14)						
CP14.1	Classify and describe the magnitude and etiology of Dissociative disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP14.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Dissociative disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP14.3	Describe the treatment of Dissociative disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP14.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Dissociative disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP14.5	Enumerate the appropriate conditions for specialist referral in patients with Dissociative disorders	K	K	Y	Interactive Lecture	MCQ/SA
Somatoform disorders (CP15)						
CP15.1	Classify and describe the magnitude and etiology of Somatoform disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP15.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Somatoform disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP15.3	Describe the treatment of Somatoform disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP15.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Somatoform disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP15.5	Enumerate the appropriate conditions for specialist referral in patients with Somatoform disorders	K	K	Y	Interactive Lecture	MCQ/SA
Eating disorders (CP16)						
CP16.1	Classify and describe the magnitude and etiology of Eating disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP16.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Eating disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP16.3	Describe the treatment of Eating disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP16.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Eating disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP16.5	Enumerate the appropriate conditions for specialist referral in patients with Eating disorders	K	K	Y	Interactive Lecture	MCQ/SA
Non organic sleep disorders (CP17)						
CP17.1	Classify and describe the magnitude and etiology of Non organic sleep disorders	K	KH	Y	Student Symposium	MCQ/SA

CP17.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Non organic sleep disorders	K	KH	Y	Student Symposium	MCQ/SA
CP17.3	Describe the treatment of Non organic sleep disorders including behavioural and pharmacologic therapy	K	KH	Y	Student Symposium	MCQ/SA
CP17.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Non organic sleep disorders	K	KH	Y	Student Symposium	MCQ/SA
CP17.5	Enumerate the appropriate conditions for specialist referral in patients with Non organic sleep disorders	K	K	Y	Student Symposium	MCQ/SA
Disorders related to sexual health (CP18)						
CP18.1	Classify and describe the magnitude and etiology of gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP18.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP18.3	Describe the management of gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP18.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP18.5	Enumerate the appropriate conditions for specialist referral in patients with gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	K	K	Y	Interactive Lecture	MCQ/SA
Adult personality disorders (CP19)						
CP19.1	Classify and describe the magnitude and etiology of Adult personality disorders	K	KH	Y	Student Symposium	MCQ/SA
CP19.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Adult personality disorders	K	KH	Y	Student Symposium	MCQ/SA
CP19.3	Describe the treatment of Adult personality disorders including behavioural and pharmacologic therapy	K	KH	Y	Student Symposium	MCQ/SA
CP19.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Adult personality disorders	K	KH	Y	Student Symposium	MCQ/SA
CP19.5	Enumerate the appropriate conditions for specialist referral in patients with Adult personality disorders	K	K	Y	Student Symposium	MCQ/SA

C.NO	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Perinatal & Reproductive mental health disorders (CP20)						
CP20.1	Classify and describe the magnitude and etiology of Perinatal & Reproductive mental health disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP20.2	Enumerate and describe the clinical features, differential diagnosis, course and prognosis of Perinatal & Reproductive mental health disorders	K	KH	Y	Interactive Lecture	MCQ/SA

CP20.3	Describe the treatment of Perinatal & Reproductive mental health disorders including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP20.4	Enumerate and describe the pharmacologic basis and side effects of drugs used in treatment of Perinatal & Reproductive mental health disorders	K	KH	Y	Interactive Lecture	MCQ/SA
CP20.5	Enumerate the appropriate conditions for specialist referral in patients with Perinatal & Reproductive mental health disorders	K	K	Y	Interactive Lecture	MCQ/SA
Psychiatric Emergencies (Suicide, Deliberate Self Harm, Violent behaviour, sexual abuse) (CP21)						
CP21.1	Classify and describe the magnitude and etiology of Psychiatric Emergencies (Suicide, Deliberate Self Harm, Violent behaviour, sexual abuse)	K	KH	Y	Interactive Lecture	MCQ/SA
CP21.2	Enumerate and describe the risk factors, differential diagnosis, course and prognosis of Psychiatric Emergencies (Suicide, Deliberate Self Harm, Violent behaviour, sexual abuse)	K	KH	Y	Interactive Lecture	MCQ/SA
CP21.3	Describe the prevention and treatment of Psychiatric Emergencies (Suicide, Deliberate Self Harm, Violent behaviour, sexual abuse) including behavioural and pharmacologic therapy	K	KH	Y	Interactive Lecture	MCQ/SA
CP21.4	Enumerate the appropriate conditions for specialist referral in patients with Psychiatric Emergencies (Suicide, Deliberate Self Harm, Violent behaviour, sexual abuse)	K	K	Y	Interactive Lecture	MCQ/SA

Psychiatric- VIII Semester (Speciality Psychiatry –SP)- 6 sessions						
Number	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Psychiatric disorders of Childhood and Adolescence (SP22)						
SP 22.1	Define and describe the etiology, assessment, classification, behavioural management and rehabilitation in Intellectual disability	K	K	Y	Student Symposium	MCQ/SA
SP 22.2	Classify and describe the concept, etiology, clinical features, and management of Autism Spectrum disorders	K	K	Y	Student Symposium	MCQ/SA
SP 22.3	Classify and describe the concept, etiology, clinical features, assessment and management of Specific Learning Disability	K	K	Y	Student Symposium	MCQ/SA
Psychiatric disorders of Childhood and Adolescence (SP23)						
SP 23.1	Classify and describe the concept, etiology, clinical feature, and management of Attention Deficit Hyperactive Disorder	K	K	Y	Student Symposium	MCQ/SA
SP 23.2	Classify and describe the concept, etiology, clinical feature, and management of Conduct and Oppositional Defiant Disorder	K	K	Y	Student Symposium	MCQ/SA
SP 23.1	Classify and describe the concept, etiology, clinical feature, and management of Elimination disorders and Stuttering	K	K	Y	Student Symposium	MCQ/SA
Mental Health issues in the Elderly (SP24)						
SP 24.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Interactive Lecture	MCQ/SA
SP 24.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Interactive Lecture	MCQ/SA
SP 24.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Interactive Lecture	MCQ/SA
SP 24.4	Describe the challenges in psychopharmacological treatment of the elderly	K	KH	Y	Interactive Lecture	MCQ/SA
SP 24.5	Enumerate the appropriate conditions for specialist referral in psychiatric disorders in the elderly	K	K	Y	Interactive Lecture	MCQ/SA
Physical Therapies (SP25)						
SP 25.1	Describe the principle, indication, contra-indication for Modified Electro-Convulsive Therapy(mECT)	K	KH	Y	Interactive Lecture	MCQ/SA
SP 25.2	Describe the principle, indication, contra-indication for Repetitive Transcranial Magnetic Stimulation (rTMS)	K	KH	Y	Interactive Lecture	MCQ/SA
SP 25.3	Describe the principle, indication, contra-indication for Light Therapy	K	KH	Y	Interactive Lecture	MCQ/SA
SP 25.4	Describe the principle, indication, contra-indication for Transcranial Direct Current Stimulation (tDCS)	K	KH	Y	Interactive Lecture	MCQ/SA
SP 25.5	Describe the principle, indication, contra-indication for Deep Brain Stimulation (DBS) & Psychosurgery	K	K	Y	Interactive Lecture	MCQ/SA

SP 25.6	Describe the principle, indication, contra-indication for Vagal Nerve Stimulation (VNS)	K	KH	Y	Interactive Lecture	MCQ/SA
Psychological therapies (SP26)						
SP 26.1	Describe the concept, principles overview and application of Behaviour therapy	K	KH	Y	Interactive Lecture	MCQ/SA
SP 26.2	Describe the concept, principles, overview and indication of cognitive therapy and its application	K	KH	Y	Interactive Lecture	MCQ/SA
SP 26.3	Describe the concept, principles, overview and indication of Psychoanalytic therapy and its application	K	KH	Y	Interactive Lecture	MCQ/SA
SP 26.4	Describe the concept, principles, overview and indication of Group therapy and its application	K	KH	Y	Interactive Lecture	MCQ/SA
SP 26.5	Describe the concept, principles and components of psychoeducation	K	KH	Y	Interactive Lecture	MCQ/SA
Positive Mental Health (SP27)						
SP 27.1	Define positive mental health, stress and recovery	K	KH	Y	Interactive Lecture	MCQ/SA
SP 27.2	Describe the concept body-mind, importance of physical health and lifestyle	K	KH	Y	Interactive Lecture	MCQ/SA
SP 27.3	Describe the concept of Love, work, rest and play	K	KH	Y	Interactive Lecture	MCQ/SA
SP 27.4	Describe the concept of mindfulness & relaxation strategies, spirituality, religious practices	K	KH	Y	Interactive Lecture	MCQ/SA
SP 27.5	Describe the concept of resilience, positive self-affirmation, paths to recovery	K	KH	Y	Interactive Lecture	MCQ/SA

Integrated Lecture (IL)						
Number	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L method	Assessment
Psychopharmacology –IV Semester						
IL 1.1	Classify antipsychotics & Mood stabilizers and its mechanism of action	K	K	Y	Interactive Lecture	MCQ/SA
IL 1.2	Describe the side effects of antipsychotics & Mood stabilizers and their management	K	K	Y	Interactive Lecture	MCQ/SA
IL 1.3	Discuss about the selection of antipsychotics & Mood stabilizers	K	K	Y	Interactive Lecture	MCQ/SA
Psychopharmacology –IV Semester						
IL 2.1	Classify antidepressants & antianxiety drugs and its mechanism of action	K	K	Y	Interactive Lecture	MCQ/SA
IL 2.1	Describe the side effects of antidepressants & antianxiety drugs and their management	K	K	Y	Interactive Lecture	MCQ/SA
IL 2.3	Discuss about the selection of antidepressants & antianxiety drugs	K	K	Y	Interactive Lecture	MCQ/SA
Forensic Psychiatry –V Semester						
IL 3.1	Discuss criminal responsibility of the mentally ill	K	KH	Y	Interactive Lecture	MCQ/SA
IL 3.2	Discuss Fitness to stand trial	K	KH	Y	Interactive Lecture	MCQ/SA
IL 3.3	Discuss Testamentary capacity	K	KH	Y	Interactive Lecture	MCQ/SA

IL 3.4	Discuss capacity assessment for admission, discharge, advance directives and nominated representative	K	KH	Y	Interactive Lecture	MCQ/SA
Community Psychiatry –VIII Semester						
IL 4.1	Describe the history of community psychiatry in India	K	K	Y	Interactive Lecture	MCQ/SA
IL 4.2	Describe the National Mental Health Programme	K	K	Y	Interactive Lecture	MCQ/SA
IL 4.3	Describe District Mental Health Programme	K	K	Y	Interactive Lecture	MCQ/SA
IL 4.4	Discuss National Mental Health Policy	K	K	Y	Interactive Lecture	MCQ/SA
IL 4.5	Discuss the social support schemes for person with mental retardation and mental illnesses	K	K	Y	Interactive Lecture	MCQ/SA

I. Clinical Postings

Number	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	T-L Method	Assessment
Rapport, Empathy, Confidentiality						
01	Establish rapport and empathy with patients	A/C	SH	Y	DOAP session	Skill station
02	Describe and demonstrate the importance of confidentiality in patient encounters	A/C	SH	Y	DOAP session	Faculty observation
03	Describe the importance of establishing rapport with patients	S/A	SH	Y	Bedside clinic, DOAP session	Skill station/ Faculty observation
History Taking and Mental Status Examination						
04	Elicit, present and document a history in patients presenting with a mental disorder	S	SH	Y	Bedside clinic, DOAP session	Skill station
05	Elicit, present and document a psychopathology in patients presenting with a mental disorder	S	SH	Y	Bedside clinic, DOAP session	Skill station
06	Perform, demonstrate and document a mental state examination	S	SH	Y	Bedside clinic, DOAP session	Skill station
07	Perform, demonstrate and document a Mini- Mental State Examination (MMSE)	S	SH	Y	Bedside clinic, DOAP session	Skill station
Substance Use Disorders						
08	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
09	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
10	Demonstrate family education in a patient with alcohol and substance abuse in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Schizophrenia & other psychotic disorders						
11	Enumerate, elicit, describe and document clinical features, positive and negative symptoms of schizophrenia	S	SH	Y	Bedside clinic, DOAP session	Skill station
12	Demonstrate family education in a patient with schizophrenia in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Depressive Disorder						
14	Enumerate, elicit, describe and document clinical features in patients with depression	S	SH	Y	Bedside clinic, DOAP	Skill station

					session	
15	Enumerate and describe the indications and interpret laboratory and other tests used in depression	S	SH	Y	Bedside clinic, DOAP session	Skill station
16	Demonstrate family education in a patient with depression in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Bipolar Affective Disorder						
17	Enumerate, elicit, describe and document clinical features in patients with bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
18	Enumerate and describe the indications and interpret laboratory and other tests used in bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
19	Demonstrate family education in a patient with bipolar disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Anxiety Disorders						
20	Enumerate, elicit, describe and document clinical features in patients with anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
21	Enumerate and describe the indications and interpret laboratory and other tests used in anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
22	Demonstrate family education in a patient with anxiety disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Obsessive Compulsive Spectrum Disorders						
23	Enumerate, elicit, describe and document clinical features in patients with obsessive compulsive spectrum disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
24	Enumerate and describe the indications and interpret laboratory and other tests used in OC spectrum disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
25	Demonstrate family education in a patient with OC spectrum disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station

Number	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	T-L Method	Assessment
Psychosomatic Disorders						
26	Enumerate, elicit, describe and document clinical features in patients with psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
27	Enumerate and describe the indications and interpret laboratory and other tests used in psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
28	Demonstrate family education in a patient with psychosomatic disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Stress Related Disorders						
29	Enumerate, elicit, describe and document clinical features in patients with stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
30	Enumerate and describe the indications and interpret laboratory and other tests used in stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
31	Demonstrate family education in a patient with stress related disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Somatoform, dissociative and conversion disorders						
32	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
33	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
34	Demonstrate family education in a patient with somatoform, dissociative and conversion disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Personality Disorders						
35	Enumerate, elicit, describe and document clinical features in patients with personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
36	Enumerate and describe the indications and interpret laboratory and other tests used in personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
37	Demonstrate family education in a patient with personality disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Disorders related to sexual health						

38	Demonstrate gender inclusive communication to Enumerate, elicit, describe and document clinical features in patients gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	S/C	SH	Y	Bedside clinic, DOAP session	Skill station
39	Enumerate and describe the indications and interpret laboratory and other tests used in gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
40	Demonstrate family education in a patient with gender incongruence, sexual dysfunctions, Sexual pain and paraphilic disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Sleep Disorders						
41	Enumerate, elicit, describe and document clinical features in patients with sleep disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
42	Enumerate and describe the indications and interpret laboratory and other tests used in sleep disorders	S	SH	Y	Bedside clinic, DOAP session	Skill station
43	Demonstrate family education in a patient with sleep disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Psychiatric disorders of Childhood and Adolescence						
44	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill station
45	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
46	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill station

Number	COMPETENCY-The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	T-L Method	Assessment
Neurocognitive Disorder						
47	Enumerate, elicit, describe and document clinical features in patients with delirium and dementia	S	SH	Y	Bedside clinic, DOAP session	Skill station
48	Enumerate and describe the indications and interpret laboratory and other tests used in delirium and dementia	S	SH	Y	Bedside clinic, DOAP session	Skill station
49	Demonstrate family education in a patient with delirium and dementia disorders in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
50	Describe the steps and demonstrate in a simulated environment family education in patients with organic psychiatric disorders	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station
Breaking Bad News						
51	Demonstrate breaking of bad news in a simulated environment (SPIKES model)	A/C	SH	Y	DOAP session	Skill station
Psychoeducation						
52	Describe the steps and demonstrate in a simulated environment psychoeducation in patients with mental illnesses	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill station

#Use of Simulated patients, Case based Discussion, Problem Based Learning, Narrative Learning and Experiential Learning to be incorporated in teaching on need and feasibility basis

5. Assessment plan

1. List certifiable competencies: NIL

2. Internal Assessment

IA Number	Theory (Question types & marks)	Theory Timing (semester)	Practical (Pattern & marks)	Practical Timing (semester)
IA 1			a) Clinics Participation b) Logbook c) Role plays d) Attitude and Communication with patient (10 marks)	III rd
IA 2	General Medicine IA Paper: Section A & C Question type: Total Marks: 15 (5 MCQ X 1 mark each) (2 SAQ X 5 marks each)	VI th	a) MCQ's (20 Marks) b) OSCE's (20 marks) c) Clinics Participation/ Logbook (10 marks) 50 marks to be converted to 10marks.	V th
IA3	General Medicine IA Paper: Section A & C Question type: Total Marks: 15 (5 MCQ X 1 mark each) (2 SAQ X 5 marks each)	VIII th	a) Case Presentation (20marks) b) General Viva (10 marks) c) OSCE/Assignment (10 marks) d) Clinics Participation/ Logbook (10 marks) 50 marks to be converted to 10 Marks	VII th
Pre professional	General Medicine Paper II: Section A & C Question type: Total		OSCE stations: 20 marks (2 Stations – 10 marks each)	

	Marks: 25 (5 MCQ X 1 mark each) (4 SAQ X5 marks each)			

3. Eligibility

1. Eligibility criteria to appear in final professional exam:
Students must score minimum 50% marks in theory and practical's separately
2. A minimum attendance of 70% in clinical posting is mandatory to appear for Internal Assessment
Practical exam (End posting examination)
3. A minimum of 75:% attendance in theory and 80% attendance in clinical postings is mandatory for appearing in Final Professional Exam (Medicine)

4. System for calculating final internal assessment marks for a professional examination.

Internal Assessment (IA) Marks:

- A. **Theory:** 12.5 marks (30 converted to 12.5)
- B. **Practical:** 10 marks (20 converted to 10)

Preprofessional Examination Marks:

- A. **Theory:** 12.5 marks (25 converted to 12.5)
- B. **Practical:** 10 marks (20 converted to 10)

Final Aggregate: [To be added to General Medicine IA marks]

A. **Theory:** 25 marks

B. **Practical:** 20 marks

Calculation Method:

Combine IA and Preprofessional Exam Marks:

a. **Theory:** 12.5 (IA) + 12.5
(Preprofessional) = 25 marks

b. **Practical:** 10 (IA) + 10
(Preprofessional) = 20 marks

5. Summative Assessment (Psychiatry is part of Medicine Paper II)

Theory (Pattern & marks)	Total Marks	Professional Practical (Pattern & Marks)	Total Marks
General Medicine Paper II: Section A & C	25	OSCE – 2 stations	20

6. Recommended Reading List

Textbooks:

1. **Shorter Oxford Textbook of Psychiatry.** Paul Harrison, Philip Cowen, Tom Burns, and Mina Fazel. 7th Edition. (Oxford University Press)
2. **IPS Textbook of Undergraduate Psychiatry.** PK Singh, Om Prakash Singh and Vinay Kumar. 1st Edition. (Jaypee Brothers Medical Publishers)
3. **A Short Textbook of Psychiatry-** Niraj Ahuja. 7th Edition. (Jaypee)
4. **Introduction to Psychology.** Clifford Morgan, Richard A. King, John R. Weisz, John Schopler. 7th Edition. (Tata Mc Graw-Hill)

Reference books:

1. **Kaplan and Sadock's Comprehensive Textbook of Psychiatry** – Benjamin J. Sadock , Virginia A. Sadock , Dr. Pedro Ruiz. 10th Edition (Set of 2 Books). Wolters-Kluwer(Lippincott Williams and Wilkins)
2. **New Oxford Textbook of Psychiatry**. John R. Geddes, Nancy C. Andreasen, Guy M. Goodwin. 3rd Edition (Set of 2 books). Oxford University Press

Model MCQ's

1. What neurotransmitter is primarily associated with mood regulation in conditions such as depression and bipolar disorder?
A) Serotonin B) Dopamine C) Acetylcholine D) GABA
2. Which of the following is a characteristic symptom of obsessive-compulsive disorder (OCD)?
A) Hallucinations B) Panic attacks
C) Intrusive thoughts D) Social withdrawal
3. A patient with sudden, intense fear and physical symptoms such as rapid heart rate, sweating, and trembling may be experiencing:
A) Generalized Anxiety Disorder **B) Panic Disorder**
C) Social Phobia D) Post Traumatic Stress Disorder
4. The primary pharmacological intervention for attention deficit/hyperactivity disorder (ADHD) often involves:
A) Benzodiazepines B) Selective serotonin reuptake inhibitors (SSRIs)
C) Antipsychotics **D) Stimulant medications**
5. Which personality disorder is characterized by a pervasive pattern of disregard for and violation of the rights of others?
A) Borderline Personality Disorder **B) Antisocial Personality Disorder**
C) Narcissistic Personality Disorder D) Obsessive-Compulsive Personality Disorder

Model OSCE
stations

Objective Structured Clinical Examination (OSCE)
Station for Psychiatry:

**(2 X 10 marks=
20 marks)**

Station 1: Suicide Risk Assessment

Scenario:

You are a medical student. You have been asked to assess a patient who presents to the emergency department with complaints of persistent sadness, feelings of hopelessness, and suicidal thoughts. The patient is a 28-year-old female. Your task is to conduct a suicide risk assessment.

Instructions:

1. Introduce yourself to the patient and establish rapport.
2. Obtain relevant information about the patient's current mental state and background.
3. Assess the severity of the patient's depressive symptoms.
4. Inquire about the presence and nature of suicidal thoughts or plans.
5. Explore any history of suicide attempts or self-harm.
6. Evaluate the patient's social support system and resources.
7. Discuss the patient's willingness to engage in safety planning.
8. Summarize your findings and discuss the next steps in managing the patient's suicidal risk.

Assessment Criteria:

1. Effective communication skills and empathy.
2. Thoroughness in gathering relevant information.
3. Ability to assess the severity of depressive symptoms.
4. Skill in eliciting information about suicidal thoughts or plans.
5. Sensitivity in addressing a history of suicide attempts or self-harm.
6. Evaluation of the patient's social support system.
7. Discussion of safety planning and risk mitigation.
8. Clarity in summarizing findings and proposing next steps.

Note to the Examiner:

Assess the student's ability to conduct a suicide risk assessment with empathy and thoroughness. Evaluate their communication skills, sensitivity to the patient's emotional state, and proficiency in exploring critical aspects related to suicide risk. Consider the student's understanding of safety planning and their ability to summarize and communicate findings effectively.

Station 2: Bipolar Disorder Psychoeducation

Scenario:

You are a medical student participating in a psychoeducation session for a patient recently diagnosed with bipolar disorder. The patient is a 35-year-old male. Your task is to provide essential psychoeducation about bipolar disorder, emphasizing key aspects of the condition and its management. **Instructions:**

1. Begin the session by introducing yourself and ensuring a comfortable environment.
2. Assess the patient's current understanding of bipolar disorder.
3. Provide a clear and concise explanation of what bipolar disorder is, including its characteristic mood swings.
4. Discuss the importance of medication adherence in managing bipolar disorder.
5. Explain potential triggers for mood episodes and strategies for mood monitoring.
6. Address lifestyle factors such as sleep, diet, and stress management that can impact bipolar symptoms.
7. Encourage the patient to involve family and friends in their support network.
8. Answer any questions the patient may have and ensure they leave with a basic understanding of their condition and its management.

Assessment Criteria:

1. Clarity and effectiveness in communication.
2. Ability to assess the patient's current knowledge and tailor information accordingly.
3. Accurate and concise explanation of bipolar disorder, including mood swings.
4. Emphasis on the importance of medication adherence.
5. Inclusion of triggers for mood episodes and strategies for monitoring.
6. Consideration of lifestyle factors impacting bipolar symptoms.
7. Encouragement of social support and involving the patient's network.
8. Ability to address patient questions and concerns.
- 9.

Note to the Examiner:

Evaluate the student's ability to effectively communicate essential information about bipolar disorder during the psychoeducation session. Assess their understanding of key aspects of the condition, the ability to tailor information to the patient's current knowledge level, and the proficiency in addressing potential questions or concerns. Consider the overall clarity, empathy, and completeness of the psychoeducation provided.

Paper II- General Medicine (Including Psychiatry & Dermatology)

Section –A (Psychiatry)

Total = 25 marks

**I. Multiple Choice Question (Single best response) 5 X
1 mark= 05 marks**

11. What is the first-line pharmacological treatment for major depressive disorder?

A) Lithium **B) Selective serotonin reuptake inhibitors (SSRIs)**

C) Benzodiazepines D) Antipsychotics

12. A patient presenting with delusions, hallucinations, disorganized speech, and impaired daily functioning is likely suffering from:

A) Schizophrenia B) Bipolar Disorder

C) Major Depressive Disorder D) Generalized Anxiety Disorder

13. Which neurotransmitter is implicated in the pathophysiology of schizophrenia?

A) Norepinephrine **B) Dopamine** C) Serotonin D) Gamma aminobutyric acid (GABA)

14. A sudden episode of intense fear, sweating, trembling, and a feeling of impending doom is characteristic of:

A) Generalized Anxiety Disorder **B) Panic Disorder**

C) Social Anxiety Disorder D) Specific Phobia

15. The primary pharmacological treatment for bipolar disorder's manic phase often involves:

A) Selective serotonin reuptake inhibitors (SSRIs) B) Antipsychotics
C) Mood stabilizers (e.g., lithium) D) Anxiolytics

Section – C

II. Short Answer

4 X 5 marks = 20 marks

1. Define delusion? Enumerate and explain the types of delusions
2. Management of alcohol withdrawal delirium?
3. Write a brief note on post-traumatic stress disorder?
4. Write briefly about the criminal responsibility of the insane?

Blueprinting of allotment of marks in psychiatry Final Professional Examination

Final Blueprint of Marks division		
S.no	Topics	Marks
1	Schizophrenia & Other Psychotic Illness	10
2	Mood Disorders (Depression and Bipolar Disorder)	10
3	Substance Use Disorders	5
4	Anxiety Disorders/Personality/Eating/Sexual/Sleep Disorders	10
5	Psychology/ Psychopathology/Forensic/Neurocognitive/Child/Community psychiatry	10

Rationale for Blueprint

Topics	Imp ac t (I)	Frequen cy (F)	I* F	Weig ht age (W)	Number of Questions (W*11)		Ma rks (W* 45)		Adjuste d to Questio ns
						Roun d off		Roun d off	
Schizophrenia	3	2	6	0.177	1.94 1	2	7.94	8	10
Mood Disorders	3	3	9	0.265	2.91 2	3	11.91	12	10
Substance Use Disorders	2	2	4	0.117	1.29 4	1	5.29	5	5
Anxiety Disorders	2	3	6	0.177	1.94 1	2	7.94	8	10
Personality/ Eating/Sexual/ Sleep disorders	1	2	2	0.059	0.64 7	0/1 ^a	2.65	3	
Neurocognitive Disorders	1	2	2	0.059	0.64 7	0/1 ^a	2.65	3	10
Child Psychiatry	1	2	2	0.059	0.64 7	0/1 ^a	2.65	3	
Forensic Psychiatry	1	1	1	0.029	0.32 4	0/1 ^b	1.32	1	
Community Psychiatry	1	1	1	0.029	0.32 4	0/1 ^b	1.32	1	
Psychology & Psychopathology	1	1	1	0.029	0.32 4	0/1 ^b	1.32	1	

		Total I*F=34					45	45

a- 2 questions from 3 topics, b- 1 question from 3 topics

I- Perceived impact of the topic, F- Frequency of occurrence, W- Weightage coefficient

Skeleton of assessment tools

S.no	Theory & Practical		
		Number of Questions	Marks
1	MCQ	5	5
2	Short Answers	4	20
3	OSCE	2	20
	Total	11	45

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अखिल भारतीय आयुर्विज्ञान संस्थान, मदुरै

**All India Institute of Medical Sciences,
Madurai**

**Department
of
Otorhinolaryngology
Head & Neck Surgery**

**Under Graduate
CURRICULUM**

Department of Otorhinolaryngology-Head & Neck Surgery

VISION

To become a Centre of excellence in the field of Otorhinolaryngology, Head and Neck Surgery, known for value-based healthcare, cutting edge research and transformational education.

MISSION

- Providing highest quality Otorhinolaryngology, Head and Neck Surgical clinical care to all sects of people
- Preparing Otorhinolaryngology, Head and Neck Surgical healthcare professionals contributing to health care needs of community through knowledge dissemination and innovation.
- Conducting research to foster the growing pace of scientific advancement in the field of Otorhinolaryngology-Head and Neck Surgery

GOAL

The aim of teaching the undergraduate student in Otorhinolaryngology-Head& Neck surgery is to impart knowledge and skills that may enable him to diagnose & treat Common ENT diseases including basic emergencies and Head & Neck Malignancies.

OBJECTIVES:

At the end of Otorhinolaryngological training, the student shall be able to

- Possess the knowledge of common ENT diseases, emergencies and Head& Neck Malignancies
- Demonstrate examination skills to diagnose ENT conditions
- Suggest common investigative procedures and be able to interpret investigative reports
- Treat common ENT-Head & Neck conditions rationally
- Demonstrate the skills of day-to-day ENT procedures like foreign body removal, Medication application, otoscopy and control of nasal bleeding.
- Assess patients requiring emergency airway and malignancies and provide appropriate referral.
- Practice and promote preventive and rehabilitative measures of ENT-Head and Neck conditions
- Pursue the life long journey of learning and decipher the knowledge to the patients and public at large
- Effectively communicate to patients/colleagues/healthcare team members and public
- Lead /work in a health care team and develop strong working relationships with the members of the team.

COURSE CONTENT

Ear: Perichondritis, wax, otitis externa, secretory, otitis media, acute suppurative otitis media, chronic suppurative otitis media (safe and unsafe), benign and malignant tumors of ear, Malignant otitis externa, rehabilitation of impaired hearing.

Nose: Deviated nasal septum, nasal polypi, allergic rhinitis, rhinosinusitis, Tumors both benign and malignant, chronic granulomatous disease of Nose like Rhinosporidiosis and atrophic rhinitis.

Oral cavity and oropharynx Tonsillitis, leukoplakia, carcinoma aphthous ulcers, pharyngitis, peritonsillar abscess, candidiasis.

Larynx: vocal cord nodule, vocal polyp, carcinoma, vocal cord palsy.
Hypopharynx: Benign and malignant disease.

Neck: Lymphadenitis, metastatic neck benign and malignant tumors of neck, branchial sinus, parotid tumors, salivary gland tumors.

Emergencies: Respiratory obstruction foreign bodies in nose, ear, throat, tracheobronchial tree and esophagus nasal bleeding, trauma to neck.

Operative Procedures: Tonsillectomy · Adenoidectomy · Septoplasty · Myringoplasty · Modified radical mastoidectomy · Radical mastoidectomy · Biopsy for diagnosis of carcinoma of tongue, etc · Direct laryngoscopy · Neck node biopsy

List of topics, Domain, TL Methods and Assessment Methods

GENERAL					
Sl No	Topics	Domain	Level	TL methods	Assessment Methods
1	Introduction to ENT, ENT as a Specialty Branch, Subspecialties in ENT, Career Options in ENT, General History taking	K	K, KH	Clinical Postings: OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
2	Observation of procedure involving topical medicine applications to Ear Nose and throat for Otoscopy/DNE/Laryngoscopy	K/S	K/SH	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
3	Demonstration and practice of Examination methods using Head light, nasal speculum, tongue depressor, laryngeal crepitus, Neck examination	S/K	SH	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
4	SKILL ASSESSMENT: Individual performance and Feed Back session	S	P	Clinical Postings Skill Lab/Simulation	FA-EOP (OSCE)
5	SKILL ASSESSMENT: Individual performance and Feed Back session	S	P	Clinical Postings Skill Lab/Simulation	FA-EOP (OSCE)
6	Counselling & obtaining informed consent form from	S/A	SH/P	Clinical Postings Role Play	FA-EOP (OSCE)

	pts undergoing surgical procedure				
7	Communication skills: What to be done, where can go wrong & With reference to Emotionally distressed situations.	S/A/K	P	Clinical Postings SGD	FA-EOP (OSCE)
8	Importance of medical Documents finding opportunity as. Learning resource	K	KH	Clinical Postings SGD/tutorial	FA-EOP (OSCE)
9	Pre-operative checklist/ preparation of the patient pre anesthetic work up and evaluation	K	K	Clinical Postings SGD/Tutorial	FA-EOP (OSCE)
10	OT set up: Preoperative Preparation, Consenting Process/ ERGONOMICS/positioning	K	K	Clinical Postings SGD	
11	Post Operative Care: Immediate monitoring, Discharge process of the patient, follow up advice	K	K	Clinical Postings SGD	FA-EOP (OSCE)
12	Choosing the Microbiological, Radiological, Pathological, Biochemistry investigation in ENT diseases & interpretations	K	KH	SGD Tutorial	FA-EOP (OSCE) SA-Viva
13	COUNSELLING & Administering informed Consent Routine, OPD	K/A/S	P	SGD Role Play/Bed Side/OT Observation	FA-EOP (OSCE)

	procedure, Elective & Emergency procedure				
14	Systemic diseases in ENT.	K	K	Tutorial	FA/SA: MCQ/SA
15	Radiology in ENT	K	K	SGD	FA-EOP (OSCE) SA-Viva
16	Instruments in ENT	K	K	SGD	FA-EOP (OSCE) SA-Viva
17	Common ENT medications including prescription writing.	K/S	K/P	Tutorial	FA-EOP (OSCE)
18	HIV in ENT/ Recent advances in ENT.	K	K	Interactive Lecture	FA/SA: MCQ/SA

OTOLOGY

Sl No	Topics	Domain	LEVEL	TL methods	Assessment Methods
1	History taking and interpretation of patients presenting with EAR complaints (Hearing Loss, Ear discharge, Otolgia Vertigo Tinnitus etc)	K	KH	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
2	Demonstration and practice of examination of Ear (including Otoscopy Tuning fork tests, drawing findings in Logbook)	K/S	P	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
3	Observation of procedure involving. Puretone Audiometry / Impedance BERA OAE. Interpretation of PTA	K	KH	Clinical Postings OPD/Audiometry room Teaching	FA-EOP (OSCE) SA-Viva
4	Elicit document history, clinical features & investigation & principles of management of a patient with Ear discharge	K/S	SH/P	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
5	Elicit document history, clinical features investigation principle of management of patients with decreased hearing	K/S	SH/P	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
6	Elicit history, clinical features investigation, Principle of management of patient Ear pain	K/S	SH/P	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva

7	CASE DISCUSSION: COM-MUCOSAL	S	SH	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
8	Discharging Ear & hearing loss – Evaluation & treatment	K	KH	SGD	FA-EOP (OSCE) SA-Viva
9	Evaluation of hearing in child New born screening, NPPCD, Rehabilitation of hearing in children.	K	KH	SGD	FA/SA MCQ/SA
10	Evaluation of Hearing in Elderly, malingerer, Rehabilitation of Hearing in elderly	K	KH	SGD	FA/SA MCQ/SA
11	Sudden SNHL, Noise induced hearing loss, c/f, evaluation & Rx	K	KH	SGD	FA/SA MCQ/SA
12	Otitis media with effusion, Aortitis media, Myringotomy, Grommet insertion	K	K	Video Session	FA/SA MCQ/SA
13	Pathophysiology C/F, treatment principles in chronic otitis media (mucosal)	K	K	SGD	FA/SA MCQ/SA/LA
14	Myringoplasty tympanoplasty, Ossiculoplasty	K	KH	Video Session	FA/SA MCQ/SA/LA
15	Mastoidectomy CWU/CWD.	K	KH	Video Session	FA/SA MCQ/SA/LA
16	Complications of chronic otitis media –	K	K	SGD: Student Seminars	FA/SA MCQ/SA/LA
17	Vestibular schwannoma	K	K	SGD	FA/SA MCQ/SA

18	Peripheral Vertigo Vs Central Vertigo	K	KH	Self-Directed Learning-SDL	FA/SA MCQ/SA
19	Facial Palsy	K	KH	Self-Directed Learning-SDL	FA/SA MCQ/SA
20	Anatomy of the Ear I. (Outer & Middle ear)	K	KH	Interactive Lecture	FA/SA MCQ/SA/LA
21	Anatomy of the Ear II. (Inner ear)	K	KH	Interactive Lecture	FA/SA MCQ/SA/LA
22	Physiology of the ear Auditory Pathway & theories of hearing	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
23	Diseases of Ext ear. (Infections including malignant otitis externa, Benign tumors)	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
24	Acute otitis media and Variants	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
25	Chronic otitis media Mucosal	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
26	Chronic otitis media squamosal.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
27	Surgical management of COM.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
28	OTOSCLEROSIS	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
29	Anatomy of the Facial nerve, topognostic tests and Diseases of Facial nerve	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
30	Balance disorders including Meniere's Disease and BPPV	K	K	Interactive Lecture	FA/SA MCQ/SA
31	Congenital Hearing Loss	K	K	Problem Based Learning	FA/SA MCQ/SA

RHINOLOGY

Sl No	Topics	Domain		TL methods	Assessment Methods
1	History taking and interpretation of patients presenting with NOSE complaints (Nasal Obstruction, Nasal discharge, Epistaxis, Headache Hyposmia etc)	K/S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
2	Elicit document history, C/F investigation & principle of management of patient Allergic rhinitis	K/S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
3	Elicit document history, C/F investigation & principle of management of pt with Nasal obstruction	K/S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
4	CASE DISCUSSION: Deviated Nasal Septum	S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
5	CASE DISCUSSION: Ethmoidal/Nasal polyps.	S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
6	CASE DISCUSSION: Allergic rhinitis.	S	SH/P	Clinical Posting OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
7	Nasal discharge, Nasal obstruction – Evaluation & treatment principles	K	KH	SGD	FA-EOP (OSCE) SA-Viva
8	Epistaxis, cauterization, Anterior & postnasal packing	K/S	P	SGD Skill Lab Session (Anterior Nasal	FA-EOP (OSCE) SA-Viva

				Packing only)	
9	Deviated nasal septum. SEPTOPLASTY vs SMR	K	KH	Video Session	FA/SA MCQ/SA/LA
10	RHINOSIUSITIS. Acute and Chronic	K	K	SGD	FA/SA MCQ/SA
11	Atrophic rhinitis, Rhinoscleroma, Rhinosporidiosis Wegener's Granulomatosis, Syphilis, TB, Leprosy T-Cell lymphoma Complications of sinusitis	K	K	SGD Student Seminar	FA/SA MCQ/SA
12	FESS surgery (video session)	K	KH	Video Session	FA/SA MCQ/SA/LA
13	OSAS	K	K	SGD	FA/SA MCQ/SA
14	Head ache	K	K	Self-Directed Learning-SDL	FA/SA MCQ/SA
15	Epistaxis- C/F, Evaluation & management	K/S	KH	Self-Directed Learning-SDL	
16	Anatomy & Physiology of Nose & PNS.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
17	Allergic rhinitis and Nasal Polyps	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
18	Rhinosinusitis	K	K	Interactive Lecture	FA/SA MCQ/SA/LA

LARYNGOLOGY

Sl No	Topics	Domain	LEVEL	TL methods	Assessment Methods
1	History taking and interpretation of patients presenting with Throat complaints (Throat pain, difficulty in swallowing, painful swallowing, neck swelling change of voice, noisy breathing, etc)	K/S	SH/P	Clinical Postings Bed side/OPD Teaching	FA-EOP (OSCE) SA-Viva
2	Elicit document history, C/F investigation& principle of management of pt with throat pain	K/S	SH/P	Clinical Postings OPD/Bed Side Teaching	FA-EOP (OSCE) SA-Viva
3	CASE Discussion: Ac & Chr tonsillitis	K/S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
4	CASE DISCUSSION: ADENOID HYPERTROPHY	K/S	SH/P	Clinical Postings OPD/Bed side Teaching	FA-EOP (OSCE) SA-Viva
5	Adenotonsillectomy	K	KH	Video session	FA/SA MCQ/SA/LA
6	Adenotonsillectomy. (VIDEO SESSION)	K	KH	Video Session	FA/SA MCQ/SA/LA
7	Evaluation and Early management of stridor. Adult & child	K	KH	SGD	FA/SA MCQ/SA
8	Foreign bodies in Aerodigestive tract.	K	K	SGD	FA/SA MCQ/SA
9	Vocal cord palsy	K	K	SGD	FA/SA MCQ/SA/LA
10	Dysphagia-Evaluation, including Deglutition	K	K	SGD	FA/SA MCQ/SA/LA
11	Disorders of swallowing	K	K	SGD	FA/SA MCQ/SA/LA

12	Airway Emergencies	K	KH	Self Directed Learning-SDL	FA/SA MCQ/SA
13	Anatomy of oral cavity. Pharynx, Physiology of Taste.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
14	Diseases of Adenoids & tonsils.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
15	Anatomy of Larynx and Benign Lesions of Larynx.	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
16	Laryngitis & vocal cord Palsy	K	K	Interactive Lecture	FA/SA MCQ/SA/LA
17	Stridor in children (croup/epiglottitis)	K	KH	Interactive Lecture	FA/SA MCQ/SA
18	Diseases of Esophagus.	K	K	Interactive Lecture	FA/SA MCQ/SA
19	Hoarseness of the Voice	K	KH	Problem Based Learning	FA/SA MCQ/SA

HEAD & NECK SURGERY

Sl No	Topics	Domain		TL methods	Assessment Methods
1	Elicit document, history, C/F investigation& principle of management of pt with NECK SWELLING	K/S	SH/P	Clinical Postings OPD/Bedside Teaching	FA-EOP (OSCE) SA-Viva FA/SA MCQ/SA/LA
2	TRACHEOSTOMY. (VIDEO SESSION)	K/S	KH/P	Videosession on Tracheostomy dressing (SKILL Lab)	FA-EOP (OSCE) SA-Viva FA/SA MCQ/SA/LA
3	Premalignant lesions of oral cavity-student seminar	K	K	SGD	FA/SA MCQ/SA
4	Tumors of Nasopharynx.	K	K	Interactive Lecture	FA/SA MCQ/SA
5	Deep neck space infections.	K	K	Interactive Lecture	FA/SA MCQ/SA
6	Laryngeal malignancy & Hypopharyngeal malignancy	K	KH	Interactive Lecture	FA/SA MCQ/SA/LA
7	Diseases of salivary glands	K	K	Interactive Lecture	FA/SA MCQ/SA
8	Tumors of Nose paranasal sinuses.	K	K	SGD	FA/SA MCQ/SA/LA

Teaching Learning Methods adopted

- Interactive Lectures
- Tutorials
- Demonstration Observation Assist and Performance session
- Student seminars
- Case discussions
- Problem based Learning
- Group discussions
- Feedback sessions
- Role Plays-AETCOM Sessions
- Self-Directed Learning
- Integrated Teaching

Otorhinolaryngology Head & Neck surgery Teaching Hours

Sl. No.	Teaching Methods	Teaching Hours
1	Lectures	25
2	Small Group Teachings	40
3	Self -Directed Learning	5
	Total	70
5	Clinical Posting (3 hours) Semester 6 (3 hours X 6 days /week)	4 weeks (72 hours)
	Semester 7 & 8 (3 hours X 6 days/Week)	3 weeks (54 hours)

List of Topics for Interactive Lectures

1. Anatomy of the Ear I. (Outer & Middle ear)
2. Anatomy of the Ear II. (Inner ear)
3. Physiology of the ear Auditory Pathway & theories of hearing
4. Diseases of Ext ear. (Infections including malignant otitis externa, Benign tumors)
5. Acute otitis media and Variants
6. Chronic otitis media Mucosal
7. Chronic otitis media squamosal.
8. Surgical management of COM.
9. OTOSCLEROSIS
10. Anatomy of the Facial nerve, Topognostic tests and Diseases of Facial nerve
11. Balance disorders including Meniere's Disease and BPPV
12. Anatomy & Physiology of Nose & PNS.
13. Allergic rhinitis and Nasal Polyps
14. Rhinosinusitis
15. Tumours of Nasopharynx.

16. Anatomy of oral cavity. Pharynx, Physiology of Taste.
17. Diseases of Adenoids & tonsils.
18. Deep neck space infections.
19. Anatomy of Larynx and Benign Lesions of Larynx.
20. Laryngitis & vocal cord Palsy
21. Stridor in children (croup/epiglottitis)
22. Laryngeal malignancy & Hypopharyngeal malignancy
23. Diseases of Oesophagus.
24. Diseases of salivary glands
25. HIV in ENT/ Recent advances in ENT.

Topics covered during Clinical Postings

6th Semester

21 sessions including EOP

1. Introduction to ENT, ENT as a Specialty Branch, Subspecialities in ENT, Career Options in ENT, General History taking (**1 SESSION**)
2. History taking and interpretation of patients presenting with EAR complaints (Hearing Loss, Ear discharge, Otolgia Vertigo Tinnitus etc) (**2 SESSIONS**)
3. History taking and interpretation of patients presenting with NOSE complaints (Nasal Obstruction, Nasal discharge, Epistaxis, Headache Hyposmia etc)(**1 SESSION**)
4. History taking and interpretation of patients presenting with Throat complaints (Throat pain, difficulty in swallowing, painful swallowing, neck swelling change of voice, noisy breathing, etc) (**2 SESSIONS**)
5. Demonstration and practice of examination of Ear (including Otoscopy Tuning fork tests, drawing findings in Logbook) (**1 SESSION**)
6. Demonstration and practice of Examination methods using Head light, nasal speculum, tongue depressor, laryngeal crepitus, Neck examination (**1 SESSION**)
7. Observation of procedure involving topical medicine applications to Ear

Nose and throat for Otoscopy/DNE/Laryngoscopy **(1 SESSION)**

8. Observation of procedure involving. Puretone Audiometry / Impedance BERA OAE. Interpretation of PTA **(1 SESSION)**
9. SKILL ASSESSMENT: Individual performance and Feed Back session **(1 SESSION)**
10. SKILL ASSESSMENT: Individual performance and Feed Back session **(1 SESSION)**
11. Counselling & obtaining informed consent form from pts undergoing surgical procedure **(1 SESSION)**
12. Communication skills: What to be done, where can go wrong & With reference to Emotionally distressed situations.**(1 SESSION)**
13. Importance of medical Documents finding opportunity as. Learning resource**(1 SESSION)**
14. Elicit document history, clinical features investigation principle of management of patients with decreased hearing **(1 SESSION)**
15. Elicit history, clinical features investigation & principle of management of patient Ear pain **(1 SESSION)**
16. Elicit document history, C/F investigation & principle of management of patient Allergic rhinitis **(1 SESSION)**
17. Elicit document history, C/F investigation & principle of management of pt with Nasal obstruction **(1 SESSION)**
18. Elicit document history, C/F investigation & principle of management of pt with throat pain **(1 SESSION)**
Elicit document, history, C/F investigation & principle of management of pt with NECK SWELLING **(1 SESSION)**

End of posting Assessment **(6th Semester) (OSCE + short case)(1 SESSION)**

8th Semester

22 sessions including EOP

- 26. CASE Discussion: Ac & Chr tonsillitis **(2 SESSION)**
- 27. CASE DISCUSSION: Deviated Nasal Septum **(1 SESSION)**
- 28. CASE DISCUSSION: COM-MUCOSAL **(2 SESSION)**
- 29. CASE DISCUSSION: Ethmoidal/Nasal polyps. **(2 SESSION)**
- 30. CASE DISCUSSION: Allergic rhinitis. **(1 SESSION)**
- 31. CASE DISCUSSION: ADENOID HYPERTROPHY **(1 SESSION)**
- 32. Pre-operative checklist preparation of the patient pre anesthetic work up and evaluation **(1 SESSION)**
- 33. OT set up: Preoperative Preparation, Consenting Process/ ERGONOMICS/positioning **(2 SESSION)**
- 34. Post Operative Care: Immediate monitoring, Discharge process of the patient, follow up advice **(1 SESSION)**

End of Posting Internal Assessment **(8th Semester) (Case presentation+ OSCE)(2 SESSIONS)**

List of Topics for Tutorials and Small Group Discussion:

1. Discharging Ear & hearing loss – Evaluation & treatment
2. Choosing the Microbiological, Radiological, Pathological, Biochemistry investigation in ENT diseases & interpretations.
3. Evaluation of hearing in child New born screening, NPPCD, Rehabilitation of hearing in children. Evaluation of Hearing in Elderly, malingerer, Rehabilitation of Hearing in elderly
4. Sudden SNHL, Noise induced hearing loss, c/f, evaluation & Rx
5. Otitis media with effusion, Aortitis media, Myringotomy, Grommet insertion **(VIDEO SESSION)**
6. Pathophysiology C/F, treatment principles in chronic otitis media (mucosal)
7. Myringoplasty tympanoplasty, Ossiculoplasty **(VIDEO SESSION)**
8. Mastoidectomy CWU/CWD. **(VIDEO SESSION)**
9. Complications of chromic otitis media – **(Student Seminar)**
10. Nasal discharge, Nasal obstruction – Evaluation & treatment principles.
11. Epistaxis, C/F, Evaluation & management, cauterization, Anterior & postnasal packing.- **skill Lab session**
12. Deviated nasal septum. SEPTOPLASTY vs SMR **(VIDEO SESSION)**
13. RHINOSIUSITIS. Acute and Chronic
14. Atrophic rhinitis, Rhinoscleroma, Rhinosporidiosis Wegener's Granulomatosis, Syphilis, TB, Leprosy T-Cell lymphoma
15. Complications of sinusitis.
16. Tumors of Nose paranasal sinuses.
17. Adenotonsillectomy. **(VIDEO SESSION)**
18. Premalignant lesions of oral cavity-student seminar
19. Evaluation and Early management of stridor. Adult & child
20. TRACHEOSTOMY. **(VIDEO SESSION)**
21. COUNSELLING & Administering informed Consent Routine, OPD procedure, Elective & Emergency procedure.

22. Foreign bodies in Aerodigestive tract.
23. Vestibular schwannoma
24. Vocal cord palsy
25. Dysphagia-Evaluation, including Deglutition Disorders of swallowing,
26. Radiology in ENT
27. Instruments in ENT
28. Common ENT medications including prescription writing.
29. FESS surgery **(VIDEO SESSION)**
30. OSAS

List of Video Sessions

1. Otitis Media with effusion, Myringotomy and Grommet insertion
2. Myringoplasty, tympanoplasty and Ossiculoplasty
3. Mastoidectomy
4. Septoplasty
5. Adenotonsillectomy
6. Tracheostomy
7. FESS surgery

List of Student Seminars:

1. Complications of CSOM
2. Atrophic Rhinitis
3. Rhinoscleroma
4. Rhinosporidiosis
5. Wegener's Granuloma/syphilis/TB/Leprosy
6. Premalignant lesions of Oral Cavity and Larynx

Topics covered in Problem Based Learning Sessions

Congenital Hearing Loss
Hoarseness of the Voice

Topics for the Self-Directed Learning in otorhinolaryngology

1. Peripheral Vertigo Vs Central Vertigo
2. Head ache
3. Epistaxis
4. Airway Emergencies
5. Facial Palsy

Topics covered in AETCOM Sessions

- Informed Consenting Process
- Communication in an emotionally distressed patients

Topics covered for integrated teaching

Anatomy of the ear, Nose & PNS, Oral cavity, oropharynx, larynx, Head & Neck (Department of Anatomy, Dentistry)

Management of Pediatric ENT Diseases
(Department of Pediatrics)

Management of Cervical Tuberculosis
(Department of Respiratory Medicine)

Management of Vertigo, Headache and complications of COM,
Rhinosinusitis (Department of General Medicine, Neurology and
Ophthalmology)

Radiological investigations in various ENT-HNS topics
(Department of Radiodiagnosis)

National Program on Prevention and control of Deafness and Health
hazards of Air, Noise pollution
(Department of Community Medicine)

ASSESSMENT

Marks distribution of ORL-HNS

INTERNAL ASSESSMENT		
Semester	Theory	Practical
6 & 8	25 Marks Structured Long Essay question 1x10=10 1 short Essay (1x5mark=5) 3 Short Answers (3x2 marks=6) 4 MCQ (4x1 marks=4)	25 Marks 3 OSCE of 5 marks each (15 Marks) 1 Short case of 10 Marks
Prefinal 9th Semester	25 Marks 5 MCQ (1x5 Marks=5) 4 Short Essay 4x 5 Marks=20)	25 Marks OSCE Station of 5 Marks Case presentation 10 Marks Viva= 10 Marks
FINAL EXAMINATION		
	Theory	Practical
Final summative Examination	25 Marks 5 MCQ (1x5 Marks=5) 4 Short Essay 4x 5 Marks=20)	25 Marks OSCE Station of 5 Marks Case presentation 10 Marks Viva= 10 Marks

Topic wise distribution of Marks

- Otology(35%)
- Rhinology(25%)
- Laryngology (20%)
- Head & Neck Oncology(20%)

Eligibility for the Examination:

Minimum criteria		
	Theory	Practical
Attendance	55% Minimum in ORL-HNS, Overall 75% along with other Surgical Allied branches and General Surgery Mandatory for appearing in Final Professional Examination	70% Minimum in ORL-HNS, Overall 80% along with other Surgical Allied branches and General Surgery Mandatory for appearing in Final Professional Examination
Internal Assessment Marks	Combined Marks of ENT-HNS, along with other Allied branches and General Surgery 50% of total Marks	Combined Marks of ENT-HNS, along with other Allied branches and General Surgery 50% of total marks
Professional Examination	Combined Marks of ENT-HNS, along with other Allied branches and General Surgery 50% of total Marks	Combined Marks of ENT-HNS, along with other Allied branches and General Surgery 50% of total marks

Internal Assessment Model Questions Pattern

Structured Essay Question

(10 Marks)

- A 45-year-old male patient presented to Emergency department with history of sudden onset of giddiness for 2 hours. Patient gives history of blood-tinged foul-smelling ear discharge and decreased hearing for 25 years
1. What is the probable diagnosis (1)
 2. Mention the etiopathogenesis/clinical features and management of his condition (2+1+4)
 3. Enlist the complications of this condition (2)

Short Essay Questions

(5 marks)

- Describe in detail the difference between Chronic otitis media of Mucosal and Squamosal type

Short Answer Questions

(2 Marks)

- Enumerate the list of Investigations in a patient with allergic rhinitis
- Briefly describe management of a case of faucial diphtheria
- Premalignant conditions of the oral cavity

Multiple choice questions

(Single Best Response)

(4x1 Mark=4 marks)

1. Stapes foot plate covers
 - a. Round window
 - b. Oval window
 - c. Sinus tympani
 - d. Pyramid
2. In a case of Cholesteatoma, Communication between middle ear and inner ear leading to giddiness is
 - a. Labyrinthitis
 - b. Perilymph fistula
 - c. Labyrinthine fistula
 - d. Sigmoid sinus thrombosis

3. 64-year-old man presented with left sided ear discharge for 7 years with dull ear ache. O/E intact tympanic membrane on both sides, mass is seen in the posterior canal wall on left side Diagnosis is
- a. Keratosis obturans
 - b. CSOM
 - c. External Otitis
 - d. Carcinoma of the EAC
4. For ASOM, Myringotomy incision is done in which quadrant:
- a. Antero inferior
 - b. Antero superior
 - c. Posterosuperior
 - d. Posteroinferior

Final Examination Model Question paper

Short Essay Questions

(4x5=20 Marks)

1. Medical & Surgical treatment of Mucosal type of Chronic suppurative Otitis media
2. Enumerate the complications of sinusitis (2) Briefly describe Clinical Features & Management of Pot's Puffy Tumor
3. Clinical features and Management of peritonsillar abscess
4. Draw a neat labelled diagram of Cross sectional anatomy of Cochlea(3)
Briefly describe Von Bekesy's Travelling Wave theory

Multiple Choice Questions

(1x5=5 Marks)

1. Rhinolalia clausa is associated with all of the following except?
a. Allergic rhinitis
b. **Palatal paralysis**
c. Adenoids
d. Nasal polyps
2. The caloric test determines the function of:
a. Posterior semicircular canal. b.Saccule. c.Utricle. d.**Lateral semicircular canal.**
3. Rhinophyma is a type of which among the following?
a.Acne rosacea b.Acne vulgaris c.Fungal infection d.Hematoma
4. Diplopia on looking to the right side in a patient with a history of bilateral chronic suppurative otitis media is likely due to
a- Right petrositis b- Left lateral sinus thrombophlebitis.
c- **Right petrositis affecting the abducent nerve** d- Left petrositis affecting the abducent nerve
5. Abductor of vocal cords:
a. Cricothyroid
b. Thyroarytenoid
c. **Posterior cricoarytenoid**
d. Lateral cricoarytenoid

Recommended text Books

1. Diseases of Ear, Nose & Throat: PL Dhingra 8th Edition (Elsevier)
2. Text book of Ear, Nose, Throat and Head-Neck Surgery Clinical and Practical-P Hazarika, DR Nayak, R Balakrishnan 5th Edition (CBS Publishers)
3. Logan & Turner Diseases of ENT 11th Edition (2017) (CRC Press)

Reference Books

1. Scott Browns Essentials of Otorhinolaryngology-Head & Neck Surgery (2022)
James A England and Eamon Shamil (CRC Press)

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Annexure

Student Feed Back Form



अखिल भारतीय आयुर्विज्ञान संस्थान, मदुरै

All India Institute of Medical Sciences, Madurai

Department of Otorhinolaryngology Head & Neck Surgery

Student Feedback on ENT Head Neck Surgery Curriculum

6th Semester and 8th Semester

A: AWARENESS

Sl No.	I am aware of	I Do Not Know completely	I know only partially	I know to a significant extent
1	Components of new curriculum			
2	Time table followed in the institution			
3	Topic Specific Objectives of ENT-HNS			
4	Mandatory skills in ENT			
5	Topics covered in Clinical postings			
6	Reflective writing			
7	Schedule of the Internal Assessments			
8	Different methods of Evaluation including, OSCE, Log book assessment, attitudinal and communication assessment MCQ, SA SE and LE			
9	Log Book completion			

B. IMPLEMENTATION

Sl No	Components	Fully Disagree	Partially disagree	Neutral	Partially Agree	Fully Agree
1	Scheduled Time table will cover the topics					
2	I Feel Time table is too hectic					
3	The teaching learning methods adopted by the departments are meeting the objectives of the curriculum					
4	The Teaching Learning methods followed are satisfactory					
	Theory Classes					
	Clinical postings					
	Small group Discussions					
	Skill lab postings					
5	The Log Book is informative					

C. PERCEPTION/PROGRESS

Sl No	Perceptions	Fully Disagree	Partially disagree	Neutral	Partially Agree	Fully Agree
CLINICAL POSTINGS						
1	Clinical postings is giving an opportunity to attend rounds along with staff and learning of patient care					
2	Actively participated in the ward round discussions					
3	learnt the skill of examination methods and taking history, learnt the skill of making a diagnosis, learnt the skill of planning the treatment and factors influencing it					
4	Witnessed the communications of the faculty members with the patients					
THEORY –INTERACTIVE LECTURE CLASSES						
1	Are being covered as per schedule					
2	Concepts/overview of the topic being covered by the teacher					
3	Lectures are interactive in nature					

SMALL GROUP DISCUSSIONS						
1	helped me in clear understanding of the concepts					
2	Have confidence in repeating the procedural skills learnt in the skill lab					
INTEGRATION SESSIONS						
1	Integrated Sessions: topics covered (Wound Management) has enhanced overall understanding about the Topic					
LOG BOOK						
1	Log Books are Structured,					
2	Checklists, helped me to understand the procedural skills					

D. SUGGESTIONS (about the Methods used, time utilisation, benefits etc)

Theory Classes

Clinical Postings

Small Group Discussions

Skill lab Postings

Integrated sessions.

Topics that need further clarifications and repetitions:

- 1.
- 2.
- 3.
- 4.
- 5

Any others

Department of Ophthalmology

**Under Graduate
CURRICULUM**

Table of Contents

- 1.Goal
2. Objectives
 - 2.1 Knowledge
 - 2.2Skills
3. Syllabus
 - 3.1Distribution of teaching hours
4. Contents
 - 4.1 Didactic lectures
 - 4.2 small group discussions (SGD) – topics
 - 4.3 self-directed learning (SDL) – topics
 - 4.4 Clinical ward teaching
5. Ophthalmology Teaching Learning Methods
- 6.Assessment
 - Formative assessment
 - Summative assessment
- 7.Eligibility for the Examination
- 8.Suggested Books
9. Model Question Paper

VISION

Our vision for the Ophthalmology Department is to be a global leader in eye care and research, pioneering innovative solutions to eliminate preventable blindness and enhance vision for all. We aspire to provide the highest quality eye care services, driven by a commitment to excellence, compassion, and accessibility. Through cutting-edge research and collaboration, we aim to advance the field of ophthalmology, contributing to a world where every individual enjoys optimal eye health and visual well-being

MISSION

The mission of the Ophthalmology Department at our Center of Excellence is to deliver exceptional patient-centered eye care, promoting vision preservation and restoration. We are dedicated to training and nurturing a diverse cadre of ophthalmologists and eye care professionals, fostering a culture of continuous learning and professional growth. Our commitment to research and innovation drives us to develop and implement transformative therapies and technologies, ultimately reducing the global burden of blindness. We strive to engage with our community, raising awareness about eye health and advocating for equitable access to eye care services worldwide

1. GOAL:

The broad goal of undergraduate teaching in ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as an internist and as a primary eye care physician, and also to function effectively as a community health leader to assist in the implementation of National Programme for the Prevention of blindness

2. OBJECTIVES:

2.1 Knowledge

At the end of the course, the student will have knowledge of :

1. Common problems affecting the eye
2. Magnitude of blindness in India and its main causes
3. Principles of management of major ophthalmic emergencies
4. Major systemic diseases affecting the eye
5. Effect of local and systemic diseases on the patient's vision and the necessary action required to minimise the sequelae of such diseases
6. Adverse drug reactions with special reference to ophthalmic manifestations
7. National programme for prevention of blindness and its implementation at various level
8. Eye care education for prevention of eye problems
9. Role of Primary Health Centres
10. Organisation of primary health care and the functioning of the Ophthalmic assistant
11. Integration of the National programme for control of blindness with the other National health programmes
12. Eye bank organization

2.2 Skills

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

1. Elicit a history pertinent to general health and ocular status
Ophthalmology
2. Perform diagnostic procedures such as visual acuity testing, examination of the eye, tonometry, staining for corneal pathology, confrontation perimetry, subjective refraction including correction for presbyopia and aphakia, direct ophthalmoscopy, conjunctival smear examination and cover test

3. Diagnose and treat common problems affecting the eye
4. Interpret ophthalmic signs in relation to common systemic disorders
5. Perform therapeutic procedures such as subconjunctival injection, corneal/conjunctival foreign body removal, carbolic cautery for corneal ulcers, nasolacrimal duct syringing and tarsorrhaphy
6. Provide first aid in major ophthalmic emergencies
7. Organise community surveys for visual health
8. Organise primary eye care services through Primary Health Centres
9. Use effective means of communication with the public and individuals to motivate them for surgery for cataract, glaucoma etc and for eye donation
10. Establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team

3. SYLLABUS

Teaching programs are regularly updated and Theory& Clinical Postings are started from 6th Semester onwards. Total theory hours for UG curriculum is 70 hours and clinical posting is 7 weeks.

3.1 Distribution of teaching hours

Theory

Semester	DIDACTIC LECTURES (Hours)	SGD/SDL (Hours)	Total (Hours)
6th semester	13	30	43
7th Semester	17	12	21
Total	30	42	72

➤ SGD- Small Group Discussion

➤ SDL – Self Directed Learning

Clinical postings

Semester	Clinical posting	Total (Hours)
6th Semester	4 Weeks (3 hours X 6 days /week)	4 weeks (72 hours)
7th Semester	3 Weeks (3 hours X 6 days /week)	3 weeks (54 hours)
Total	7 Weeks	126 Hours

4. Contents

4.1 Didactic lectures

6th Semester

1. Basic sciences concept in relation to Ocular Anatomy and Physiology
2. Symptomatology in Ocular disorders and their Pathogenesis
3. Disorders of the Lid
4. Disorders of the Lacrimal Apparatus
5. Conjunctivitis & Ophthalmia Neonatorum
6. Trachoma & Other chronic conjunctivitis
7. Keratitis and corneal ulcers
8. Scleritis & Episcleritis
9. Refractive Errors & Method of correction
10. Presbyopia, accommodation convergence
11. Congenital cataract
12. Senile cataract and General principles of Intra ocular surgery
13. Metabolic & complicated cataract
14. Primary Angle closure glaucoma
15. Congenital glaucoma
16. Primary Open angle glaucoma and management
17. Secondary glaucoma
18. Anterior uveitis and management

19. Posterior uveitis and management
20. Blindness prevalence, prevention & rehabilitation

7th Semester

1. Retinopathies, Hypertensive, Preeclampsia & Pregnancy
2. Diabetic Retinopathy
3. Retinal Detachment, types, symptoms & pre-disposing factors
4. Endocrine ophthalmology
5. Retinal vascular disorders
6. Retinoblastoma & other ocular neoplasms
7. Binocular vision amblyopia & concomitant squint
8. Ocular involvement in systemic diseases
9. Incomitant strabismus
10. Visual acuity, pupillary pathways & cranial nerve palsies
11. Optic nerve lesions
12. Ocular emergencies (Traumatic)
13. Ocular emergencies (Non-Traumatic)
14. Minor ophthalmic procedures.
- 15 National programme for control of blindness
16. Comprehensive eye care in rural set up
17. Eye banking & ethics in ophthalmology

4.2 SMALL GROUP DISCUSSIONS(SGD) - Topics

- 1.Ocular Anatomy
- 2.Physiology of vision and colour vision
- 3.Lid swellings,orbital cellulitis

- 4.Ectropion,Entropion,Ptosis
- 5.Dacryocystitis- types,clinical features and management
- 6.Proptosis,Thyroid eye disease
- 7.Conjunctivitis - types and management
- 8.Trachoma , Ophthalmia neonatorum
- 9.Pterygium,Sub conjunctival Haemorrhage
- 10.corneal ulcer
- 11.Dry eye
- 12.Keratoconus,Corneal opacity
- 13.Keratoplasty and eye banking
- 14.Scleritis and episcleritis
- 15.Anterior Uveitis
- 16.posterior uveitis
- 17.Cataract
- 18.Primary Open Angle Glaucoma
- 19.Primary Angle Closure Glaucoma
- 20.Diabetic and Hypertensive retinopathy
- 21.Retinopathy of Prematurity, Retinal detachment,Retinitis pigmentosa
- 22.Central Retinal Artery & Venous occlusion
- 23.Ocular tumors
- 24.Vitreous Haemorrhage
- 25.Papilloedema,Optic Neuritis
- 26.Esotropia,Exotropia
- 27.Blunt trauma
- 28.Ocular emergency
- 29.Refractive Errors
- 30.community ophthalmology

4.3 SELF DIRECTED LEARNING(SDL) - Topics

- 1.Acute Red Eye
- 2.Keratitis- aetiology ,clinical features,investigations and management
- 3.Uveitis - classification, clinical features,investigations and management
- 4.Glaucoma- definition,clinical types,investigations and management
- 5.Cataract- types ,clinical stages,investigations, types and complications of cataract surgery
- 6.Diabetic Retinopathy- Etiopathogenesis, Classification, investigations and management
- 7.Retinopathy of prematurity, Retinitis pigmentosa, Retinal detachment
- 8.Retinal vascular occlusion- Etiopathogenesis,classification,investigations and management
- 9.Lasers in ophthalmology
- 10.Papilloedema,optic neuritis,optic atrophy
- 11.Strabismus- types ,investigations and management
- 12.Visual pathway and its lesions,abnormal pupil
- 13.Keratoplasty,eye banking
- 14.ocular injuries
- 15.NPCB ,DBCS,Vision 2020

4.4 Clinical ward teaching-

- History taking and ocular examination

- Entropion / ectropion
 - Pterygium
 - NLD block / Dacryocystitis
 - Conjunctivitis / allergic / acute
 - Corneal ulcer/keratitis
 - Iridocyclitis
 - Angle closure glaucoma
 - Scleritis / episcleritis
 - Dark room
 - Refractive errors & presbyopia
 - Cataract – senile a. Complicated b. Post operative c. Complications d. Intraocular lenses
 - Basic sciences (Microbiology, Pharmacology, Pathology)
 - Investigative lab (Ophthalmology).
 - 17. Casualty & minor O.T.
 - 19. Open angle glaucoma
 - Xerophthalmia
-
- Corneal opacities
 - Ocular injury
 - Perforating / concussion injuries
 - Amaurosis fugax
 - Diabetic retinopathy
 - Hypertensive retinopathy
 - Anemic and other retinopathies
 - Indirect ophthalmoscopy
 - Orthoptics
 - Concomitant squint
 - Paralytic squint
 - Surgical Instruments
 - Main O.T.

5. Ophthalmology Teaching Learning Methods

- Interactive Lectures
- Tutorials
- Demonstration Observation Assist and Performance session
- Student seminars
- Case discussions
- Problem based Learning
- Group discussions
- Feedback sessions
- Role Plays-AETCOM Sessions
- Self-Directed Learning
- Integrated Teaching

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Teaching Learning method	Assessment
OPHTHALMOLOGY					
Visual Acuity Assessment					
OP1.1	Describe the physiology of vision	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP1.2	Define, classify and describe the types and methods of correcting refractive errors	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes	S	SH	DOAP session, Lecture	Skill assessment/ Logbook
OP1.4	Enumerate the indications and describe the principles of refractive surgery	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP1.5	Define, enumerate the types and the mechanism by which strabismus leads to amblyopia	K	KH	Lecture, Small group discussion	Written/ Viva voce

Lits and Adnexa, Orbit

OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP2.2	Demonstrate the symptoms & clinical signs of conditions enumerated in OP2.1	S	S	DOAP session	Skill assessment
OP2.3	Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal	S	SH	DOAP session, Lecture	Skill assessment

	sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation				
OP2.4	Describe the aetiology, clinical presentation. complications and management of orbital cellulitis	Discuss the	K	KH	Lecture, Small group discussion
OP2.5	Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP2.6	Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP2.7	Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP2.8	List the investigations helpful in diagnosis of orbital tumors.	K	KH	Lecture, Small group discussion	Written/ Viva voce

	Enumerate the indications for appropriate referral				
Conjunctiva					
OP3.1	Elicit document and present an appropriate history in a patient presenting with a “red eye” including congestion, discharge, pain	S	SH	DOAP session	Skill Assessment
OP3.2	Demonstrate document and present the correct method of examination of a “red eye” including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness	S	SH	DOAP session	Skill Assessment
OP3.3	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP3.4	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and	K	KH	Lecture, Small group discussion	Written/ Viva voce

	management of trachoma.				
OP3.5	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP3.6	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP3.7	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP3.8	Demonstrate correct technique of removal of foreign body from the eye in a simulated environment	S	SH	DOAP session	Skill assessment
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	S	SH	DOAP session	Skill assessment

Cornea

OP4.1	Enumerate, describe and discuss the types and causes of corneal ulceration	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP4.2	Enumerate and discuss the differential diagnosis of infective keratitis	K	KH	Lecture, Small group discussion	Written/ Viva voce
OP4.3	Enumerate the causes of corneal edema	K	KH	Lecture, Small group discussion	OP4.3
OP4.4	Enumerate the causes and discuss the management of dry eye	K	KH	Lecture, Small group discussion	OP4.4
OP4.5	Enumerate the causes of corneal blindness	K	KH	Lecture, Small group discussion	OP4.5
OP4.6	Enumerate the indications and the types of keratoplasty	K	KH	Lecture, Small group discussion	OP4.6
OP4.7	Enumerate the indications and describe the methods of tarsorrhaphy	K	KH	Lecture, Small group discussion	OP4.7
OP4.8	Demonstrate technique of removal of foreign body in the cornea in a simulated environment	S	SH	DOAP session	OP4.8

OP4.9	Describe and discuss the importance and protocols involved in eye donation and eye banking	K	KH	Lecture, Small group discussion	OP4.9
OP4.10	Counsel patients and family about eye donation in a simulated environment	A/C	SH	DOAP session	OP4.10

Sclera

OP5.1	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of episcleritis	K	KH	Lecture, Small group discussion	OP5.1
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Lecture, Small group discussion	OP5.2

Iris and Anterior Chamber

OP6.1	Describe clinical signs of intraocular inflammation	K	KH	Lecture, Small group discussion	OP6.1

	and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition				
OP6.2	Identify and distinguish acute iridocyclitis from chronic iridocyclitis	K	KH	Lecture, Small group discussion	OP6.2
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Lecture, Small group discussion	OP6.3
OP6.4	Describe and distinguish hyphema and hypopyon	K	KH	Lecture, Small group discussion	OP6.4
OP6.5	Describe and discuss the angle of the anterior chamber and its clinical correlates	K	KH	Lecture, Small group discussion	OP6.5
OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	S	SH	DOAP session, Bedside clinic	OP6.6
OP6.7	Enumerate and discuss the aetiology, the	K	KH	Lecture, Small	OP6.7

	clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.			group discussion	
OP6.8	Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea	K	KH	Lecture, Small group discussion	OP6.8
OP6.9	Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions	K	KH	Lecture, Small group discussion	OP6.9
OP6.10	Counsel patients with conditions of the iris and anterior chamber about their diagnosis, therapy and prognosis in an empathetic manner in a simulated environment	A/C	SH	DOAP session	OP6.10

Lens

OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Lecture, Small group discussion	OP7.1
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Lecture, Small group discussion	OP7.2
OP7.3	Demonstrate the correct technique of ocular examination in a patient with a cataract	S	SH	DOAP session	OP7.3
OP7.4	Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	S	KH	DOAP session, Lecture, Small group discussion	OP7.4
OP7.5	To participate in the team for cataract surgery	S	SH	DOAP session	OP7.5
OP7.6	Administer informed consent and counsel patients for cataract surgery in a simulated environment	S	SH	DOAP session	OP7.6

Retina and Optic Nerve

OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Lecture, Small group discussion	OP8.1
OP8.2	Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)	K	K	Lecture, Small group discussion	OP8.2
OP8.3	Demonstrate the correct technique of a fundus examination and describe and distinguish the fundusoscopic features in a normal condition and in conditions causing an abnormal retinal exam	S	SH	Lecture, Small group discussion	OP8.3
OP8.4	Enumerate and discuss treatment modalities in management of diseases of the retina	K	KH	Lecture, Small group discussion	OP8.4
OP8.5	Describe and discuss the correlative anatomy,	K	KH	Lecture, Small group discussion	OP8.5

	aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway				
Miscellaneous					
OP9.1	Demonstrate the correct technique to examine extra ocular movements (Unilateral & Binocular)	S	P	DOAP session	OP9.1
OP9.2	Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus	K	KH	Lecture, Small group discussion	OP9.2
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Lecture, Small group discussion	OP9.3
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Lecture, Small group discussion	OP9.4

OP9.5	Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury	K	KH	Lecture, Small group discussion	OP9.5

- K (Domain)-Knowledge
- K(Level) - Knows
- KH – Knows How
- DOAP – Demonstrate, Observe, Assess, Perform

6. ASSESSMENT

Marks distribution for OPHTHALMOLOGY

FORMATIVE (internal) ASSESSMENT		
Semester	Theory	Practical
6 & 8	25 Marks Structured Long Essay question (1x10=10) 1 short Essay (1x5mark=5) 3 Short Answers (3x2 marks=6) 4 MCQ (4x1 marks=4)	25 Marks 3 OSCE of 5 marks each (15 Marks) 1 Short case of 10 Marks
Prefinal 9th Semester	25 Marks 5 MCQ (1x5 Marks=5) 4 Short Essay 4x 5 Marks=20)	25 Marks OSCE Station of 5 Marks case presentation 10 Marks Viva= 10 Marks
SUMMATIVE (final) EXAMINATION		
	Theory	Practical
Final summative Examination	25 Marks 5 MCQ (1x5 Marks=5) 4 Short Essay 4x 5 Marks=20)	25 Marks OSCE Station of 5 Marks case presentation 10 Marks Viva= 10 Marks

7. Eligibility for the Examination

Minimum criteria		
	Theory	Practical
Attendance	50% Minimum in ophthalmology Overall 75% along with other Surgical Allied branches and General Surgery - Mandatory for appearing in Final Professional Examination	70% Minimum in ophthalmology, Overall 80% along with other Surgical Allied branches and General Surgery Mandatory for appearing in Final Professional Examination
Internal Assessment Marks	Combined Marks of ophthalmology , along with other Allied branches and General Surgery 50% of total Marks	Combined Marks of ophthalmology, along with other Allied branches and General Surgery 50% of total marks
Professional Examination	Combined Marks of ophthalmology , along with other Allied branches and General Surgery 50% of total Marks	Combined Marks of ophthalmology, along with other Allied branches and General Surgery 50% of total marks

8.SUGGESTED BOOKS

- 1) Parson's Diseases of the Eye 23rd Edition: Dr. R. Sihota ,
- 2) Synopsis of Clinical Ophthalmology, International Edition 9th Edition : Kanski
- 3) Comprehensive Ophthalmology 7th Edition- A K Khurana
- 4) Undergraduate Ophthalmology – Dr Vanathi

Internal Assessment Model Questions Pattern

Structured Essay Question

(10 x1=10 Marks)

1. Write briefly the differential diagnosis of acute red eye.
Discuss in detail the management of bacterial corneal ulcer.

Short Essay Questions

(5 x1=5 marks)

1. Pterygium

Short Answer Questions

(3x2=6 Marks)

1. Astigmatism
2. Anterior Uveitis
3. Retinitis Pigmentosa

Multiple choice questions

(Single Best Response)

(4x1=4 marks)

1. Koeppe's nodule is seen in
 - A. In the anterior lid margin
 - B. In the conjunctival membrane
 - C. In the cornea
 - D. At the pupillary margin of iris
2. Pain is out-of-proportion to signs in which type of corneal ulcer?
 - A. Herpes simplex keratitis
 - B. Acanthamoeba keratitis
 - C. Fungal keratitis
 - D. Pneumococcal keratitis
3. Extra layer of cilia posterior to grey line is called
 - A. Tylosis
 - B. Madarosis
 - C. Distichiasis
 - D. Trichiasis
4. Pseudogerontoxon is seen in
 - A. Vernal keratopathy
 - B. Choroidal Melanoma
 - C. Trachoma
 - D. Retinoblastoma

Final Examination Model Question paper

Short Essay Questions

(4x5=20 Marks)

1. Vernal kerato conjunctivitis
2. Parsplanitis
3. Acute congestive Glaucoma
4. Retinal detachment

Multiple Choice Questions

(5x1=5 Marks)

1. Hemeralopia is seen in
 - A. Retinal detachment
 - B. Retinitis pigmentosa
 - C. Optic neuritis
 - D. Sub-capsular cataract
2. Iron deposition line at the edge of pterygium on corneal epithelium is known as
 - A. Stocker's line
 - B. KF ring
 - C. Fleischer ring
 - D. Ferry's line
3. Which layer helps in maintain hydration of stroma of the cornea
 - A. Descemet's membrane
 - B. Endothelium
 - C. Epithelium
 - D. Stroma
4. Shifting fluid sing in see in
 - A. Exudative Retinal Detachment
 - B. Tractional retinal Detachment
 - C. Rhegmatogenous Retinal Detachment
 - D. Retinal hole
5. Pseudogerontoxon is seen in
 - A. Vernal Keratopathy
 - B. Choroidal melanoma
 - C. Trachoma
 - D. Retinoblastoma

Department of
Orthopaedics

ORTHOPAEDICS SYLLABUS

Orthopaedics is branch of modern Medicine which deals with congenital and acquired disorders of musculo-skeletal system. Considering the advances in the modalities of management for orthopaedic illnesses and increased incidence of trauma, basic preliminary knowledge of Orthopaedics must be acquired at MBBS level.

As an undergraduate trainee, students are expected to know the common orthopaedic illnesses and ailments with respect to their etiopathogenesis, diagnostic clinical features and basic management modalities. They are also expected to learn the principles of bracing, splinting and traction and their application techniques as well as skill to perform the same.

Vision:

To achieve global standards in Orthopedic patient care by adapting national and international accredited standards and developing a culture of excellence in professionalism, governance, and leadership.

Mission:

- 1.To provide the highest quality and compassionate musculoskeletal care through innovation, latest research and training, keeping safety at the top.
- 2.To provide strategic planning and assistance for all-round development of students and continuous professional development of faculty and staff

Goal:

The aim of teaching the undergraduate student in Orthopaedics (including Trauma) and Physical Medicine and Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common ailments. He/she shall have ability to diagnose and suspect presence of fracture, dislocation, acute osteomyelitis, acute poliomyelitis and common congenital deformities such as Congenital Talipes Equino Varus (CTEV) and Developmental Dysplasia of Hip (DDH)

COURSE OUTCOMES

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

1. Explain the principles of recognition of bone injuries and dislocation.
2. Apply suitable methods to detect and manage common infections of bones and joint; learn indications for sequestrectomy, amputations.
3. Identify congenital, skeletal anomalies and their referral for appropriate correction or rehabilitation.
4. Recognize metabolic bone diseases relevant to Indian context.
5. Explain etiopathogenesis, manifestations, and diagnosis of neoplasms affecting bones.
6. Enumerate few recent advances in Orthopaedics.

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

1. Detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, distal radius, forearm and phalanges.
2. Use techniques of splinting, plaster, and immobilization for fractures.
3. To detect and plan treatment algorithm for common deformities of bone and joint.
4. Advise aspects of rehabilitation for Polio, Cerebral Palsy and Amputation.
5. Apply compression bandage for injuries over extremities.

Lectures, SGD's, tutorials, seminars, SDL are planned as per the competencies defined in CBME curriculum.

Course contents and suggested teaching program of Orthopaedics (Total 90 hours):

Professional year	Lectures (Hours)	Small group discussions(SGD) (Hours)	Self directed learning (SDL)(Hours)	Total
2 nd	None	None	None	
3 rd (I)	15	20	05	40
3 rd (II)	20	25	05	50
Total	35	45	10	90

Clinical postings :

Semester	Professional year	Number of weeks
3 rd	2 nd	None
4 th	2 nd	None
5 th	2 nd	2 weeks
6 th	3 rd (I)	2 weeks
7 th	3 rd (I)	None
8 th	3 rd (II)	4 weeks
9 th	3 rd (II)	none

Topics for Lectures and Small group discussions:

Sl.No	Topics
1.	Skeletal trauma, polytrauma
2.	Fractures
3.	Musculoskeletal infection
4.	Skeletal tuberculosis
5.	Rheumatoid arthritis and associated inflammatory disorders
6.	Degenerative Spine disorders
7.	Metabolic bone disorders
8.	Poliomyelitis
9.	Cerebral palsy
10.	Bone tumours
11.	Peripheral nerve injuries
12.	Congenital and Genetic anomalies
13.	Developmental Anomalies
14.	Miscellaneous regional orthopaedic disorders

Topics for Self-Directed Learning:

Sl.No	Topics
1.	Skeletal trauma, polytrauma
2.	Fractures
3.	Musculoskeletal infection
4.	Bone tumours
5.	Peripheral nerve injuries
6.	Physical medicine and Rehabilitation

COMPETENCY BASED CURRICULUM FOR UNDERGRADUATE TEACHING									
DEPARTMENT OF ORTHOPAEDICS, AIIMS MADURAI									
Num ber	COMPETENC Y	Domain K/S/A/C	Level K/KH/ SH/P	Cor e (Y/ N)	Suggested Teaching Learning method	Suggest ed Assess ment method	Numb er requir ed to certif y	Vertical Integrat ion	Horizon tal Integrat ion
	The student should be able to:	K- Knowledge S-Skill A-Attitude C- Communication	K- Knows KH- Knows How S- Shows SH- Shows How P- Perform						
ORTHOPEDICS									
Topic: Skeletal Trauma, Poly trauma	Number of competencies: (04)			Number of procedures that require certification: (NIL)					
OR1. 1	Describe and discuss the principles of pre-hospital care and Casualty management of a trauma victim including principles of triage	K/S//C	K/KH/ SH	Y	Lecture with video, small group discussion/ Skills lab	Written / Viva voce/ OSCE/ Simulation			Emergency medicine
OR1. 2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K	K/KH	Y	Lecture/ Small group discussion	Written / Viva voce/ OSCE/			Emergency Medicine
OR 1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations	K	KH/SH	Y	Lecture, Small group discussion	Written / OSCE			Plastic Surgery

	, principles and management of soft tissue injuries								
OR 1.4	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of dislocation of major joints, shoulder, knee, hip	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written / Viva voce/ OSCE/			

Num ber	COMPETENCY	Doma in K/S/ A/C	Level K/KH / SH/P	Co re (Y/ N)	Sugges ted Teachi ng Learn ing method	Suggest ed Assess ment method	Num ber requi red to certif y	Vertica l Integra tion	Horizont al Integrati on
Topic: Fractures		Number of competencies: (19)				Number of procedures that require certification: (NIL)			
OR2. 1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/S H	Y	Lecture , Bed side clinic	Writte n/ Viva voce/			
OR2. 2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH /	Y	Lecture , Small group discuss ion, Bed side clinic	Written / Viva voce/ OSCE			
OR2. 3	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture , Small group discuss ion, Bed side clinic	Writte n/ Viva voce/ OSCE			
OR2. 4	Describe and discuss the aetiopathogene sis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galaezzi and Monteggia injury	K	K/KH	Y	Lecture , Small group discuss ion, Bedsid e clinic	Written / Viva voce/ OSCE			
OR2. 5	Describe and discuss the	K	KH	Y	Lecture , Small	Written / Viva			

	aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius				group discussion, Bedside clinic	voce/ OSCE			
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of Scaphoid	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of metacarpals and phalanges (Bennet's fracture and Rolando fracture)	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures in children like a. supracoracoid humerus fracture b. Distal radius Torus fracture, c. Green stick	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			

	fracture								
OR2.9	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, classification, investigations and principles of management of physeal injuries in children	K	KH	Y	Lecture , Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH / SH	Y	Lecture , Small group discussion, Bedside clinic Skills lab	Written / Viva voce/ OSCE			
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH / SH	Y	Lecture , Small group discussion, Bedside clinic Skills lab	Written / Viva voce/ OSCE			Neurosurgery
OR2.12	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fractures	K	K/KH	Y	Lecture , Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			
OR2.13	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles	K/S/ A/C	KH	Y	Lecture , Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			

	of management of fractures of proximal femur								
OR2.14	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur (c) Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K/S/A/C	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic Skills lab	Written / Viva voce/ OSCE			
OR2.15	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K/S/A/C	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic Skills lab	Written / Viva voce/ OSCE			
OR2.16	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K/S/A/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic Skills lab	Written / Viva voce/ OSCE			
OR2.17	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written / Viva voce/ OSCE			

	of management of ankle fractures									
OR2.18	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome etc.,	K/S	SH	Y	Lecture , Small group discussion, Bedside clinic	Written / Viva voce/ OSCE				
OR2.19	Describe and discuss the mechanism of injury, clinical features, investigations, classification and principles of management of open fractures with focus on secondary infection prevention and management	K	K/KH	Y	Lecture , Small group discussion, Bedside clinic	Written / Viva voce/ OSCE				

Num ber	COMPETEN CY The student should be able to:	Domai n K/S/ A/C	Leve l K/K H/ SH/ P	Cor e (Y/ N)	Suggeste d Teaching Learning method	Suggest ed Assess ment method	Numb er requi red to certif y	Vertical Integrat ion	Horizon tal Integra tion
Topic: Musculoskeletal Infection		Number of competencies: (03)			Number of Procedures that require certification: (NIL)				
OR3. 1	Describe and discuss the aetiopathoge nesis, clinical features, investigation s and principles of management of Bone and Joint infections	K/S	K/K H/ SH	Y	Lecture, Small group discussio n, Video assisted lecture	Written/ Viva voce/ OSCE		Microbio logy	
OR3. 2	Participate as a member in team for aspiration of joints under supervision	K/S/A /C	SH	Y	Small group Discussio n. DOAP session Skills lab	Viva voce/ OSCE/ Skills assessm ent		–	
OR3. 3	Participate as a member in team for procedures like drainage of abscess, sequestrecto my/ saucerisatio n and arthrotomy	K/S/A /C	SH	Y	DOAP session, Video demonstr ation	Viva voce/ OSCE/ Skills assessm ent			
Topic: Skeletal Tuberculosis		Number of competencies :(01)			Number of procedures that require certification: (NIL)				
OR4. 1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/K H	Y	Lecture, Small group discussio n, Case discussio n	Written/ Viva voce/ OSCE			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Rheumatoid Arthritis and associated inflammatory disorders		Number of competencies : (02)				Number of procedures that require certification: (NIL)			
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			Rheumatology
OR5.2	Select, prescribe and communicate appropriate medications for relief of joint pain	K	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE			
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Degenerative Spine disorders		Number of competencies: (01)				Number of procedures that require certification: (NIL)			
OR6.1	Describe and discuss the clinical features, investigations and principles of management of degenerative condition of spine (Cervical Spondylosis, Lumbar Spondylosis, Spondylolisthesis and Scoliosis)	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Metabolic bone disorders		Number of competencies: (01)				Number of procedures that require certification: (NIL)			
OR7.1	Describe and discuss the aetiopathogenesis, clinical features, investigation and principles of management of metabolic bone disorders in particular a. Calcium metabolism b. Vitamin D and PTH metabolism c. Rickets d. Renal osteodystrophy e. Hyperparathyroidism f. Scurvy g. Osteomalacia h. Osteoporosis i. Fluorosis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			Endocrinology, General Medicine
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Poliomyelitis		Number of competencies: (01)				Number of procedures that require certification: (NIL)			
OR8.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management a patient with Post-Polio Residual Paralysis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Cerebral Palsy		Number of competencies: (01)				Number of procedures that require certification: (NIL)			
OR9.1	Describe and discuss the aetiopathogenesis, clinical	K	K/KH	Y	Lecture, Small	Written/ Viva			

	features, assessment and principles of management of Cerebral palsy patient				group discussion	voce/ OSCE			
Topic: Peripheral nerve injuries		Number of competencies: (01)					Number of procedures that require certification: (NIL)		
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small group discussion, case discussion	Written/ Viva voce/ OSCE			
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Congenital and Genetic anomalies		Number of competencies: (02)					Number of procedures that require certification: (NIL)		
OR11.1	Describe and discuss the clinical features, investigations and principles of management of Congenital and acquired malformations and deformities of upper limb, lower limb and Spine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
OR11.2	Describe and discuss in detail about clinical features, evaluation and management of Genetic disorders a. Gaucher's disease b. Osteogenesis Imperfecta c. Osteopetrosis d. Achondroplasia e. Dyschondroplasia f. Multiple epiphyseal dysplasia g. Mucopolysaccharidosis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			General Medicine Pediatrics
Topic: Developmental Anomalies									
OR11.3	a. Perthes disease b. Slipped capital femoral epiphysis c. Coxa vara d. Genu valgum e. Genu varum f. Genu recurvatum g. Sprengel shoulder	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			Pediatrics
Topic: Bone Tumours		Number of competencies: (01)					Number of procedures that require certification: (NIL)		
OR12.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General surgery, Radiotherapy
Topic: Miscellaneous regional orthopaedic disorders		No Of Competencies : 6					Number of procedures that require certification: (NIL)		
OR 13.1	Describe the clinical presentation and management of Regional disorders of Shoulder a. Impingement syndrome b. Shoulder arc syndrome	K/S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			

	c. Frozen shoulder d. Periarthritis shoulder e. Rotator cuff lesions f. Chronic shoulder instability								
OR 13.2	Elbow a. Lateral epicondylitis b. Medial epicondylitis c. Olecranon bursitis d. Cubitus varus and valgus	K / S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			
OR 13.3	Wrist and hand a. Dequervains tenosynovitis b. Flexor tenosynovitis c. TFCC injury d. Ganglion e. Keinbock's disease f. Mallet finger g. Gamekeeper's thumb	K / S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			
OR 13.4	Hip h. Transient synovitis of hip i. Avascular necrosis	K / S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			
OR 13.5	Knee a. Meniscus injury b. Cruciate/ Collateral ligament injury c. Chondromalacia, Recurrent dislocation of patella d. Chondromalacia patellae e. Synovial chondromatosis	K / S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			General Medicine
OR 13.6	Ankle and foot a. Flat foot b. Hallux valgus	K / S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE			General Medicine
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
OR14.1	Participate in a team for procedures in patients and demonstrating the ability to perform on mannequins / simulated patients in the following: f. Above elbow plaster cast ii. Below knee plaster iii. Thomas splint iv. splinting for long bone fractures vi. Strapping for shoulder and clavicle trauma	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			
OR14.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following: (a) I.V. access central – peripheral	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small	OSCE with Simulation based assessment			Anaesthesia

	(b) Bladder catheterization (c) Endotracheal intubation (a) Splintage				group discussion, Teaching, Skill lab sessions				
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Counselling Skills		Number of competencies: (03)					Number of procedures that require certification: (NIL)		
OR15.1	Demonstrate the ability to counsel patients regarding prognosis in patients with various orthopaedic illnesses like a. fractures with disabilities b. fractures that require prolonged bed stay c. bone tumours d. congenital disabilities	K/S/A/C	KH / SH	Y	Case discussion, Video assisted lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
OR15.2	Demonstrate the ability to counsel patients to obtain consent for various orthopaedic procedures like limb amputation, permanent fixations etc., at the end of the session the phase-III student must know the various orthopaedics injuries and their complication which can result in limb amputation	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
OR15.3	Demonstrate the ability to convince the patient for referral to a higher centre in various orthopaedic illnesses, based on the detection of warning signals and need for sophisticated management i. must know the various limitations of treatment in his institution. ii. must know the various facilities available in the referral institute iii. must know the various warning signs serious orthopaedics injuries	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.								
	Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Subject: Orthopaedics Self-Directed Learning

MBBS 3rd Professional/I

Total Teaching hours: 5 hours

S No	COMPETENCIES	SUBTOPICS	HOURS
1.	OR1.1	Polytrauma, ATLS	1
2.	OR 1.4	Dislocations	1
3.	OR 2.18	Compartment syndrome	1
4.	OR 15.2	Crutches, Mobility Aids	1
5.	OR 15.2	Amputations, Prosthesis	1

MBBS 3rd Professional /II

Total Teaching hours: 5 hours

S No	COMPETENCIES	SUBTOPICS	HOURS
1.	OR 2.10	Pelvic injury and Shock	1
2.	OR 2.11	Spinal cord injury	1
3.	OR3.1	Osteomyelitis	1
4.	OR 12.1	Malignant bone tumour	1
5.	OR 10.1	Peripheral nerve injuries	1

Topics to learn in clinical postings (Including Clinical Clerkship)-

1. Bedside history taking in ward.
2. Observing procedures in Operation theatre and casualty. (OR13.2)
3. Examine indoor (medical; preoperative and postoperative) patients.
4. Learn examination, principles of treatment and techniques of traction, wound care and
5. splintage. (OR13.1)
6. Attend OPD, operation theatre and emergency operations for acclimatization. (OR13.1)
7. Attending ward rounds.
8. Learn plaster application, post plaster care. (OR13.1)
9. Learn to explain prognosis of fractures/ diseases to patients posted for surgery, breaking bad
10. news. (OR14.1)
11. Participate in the teaching sessions in ward for bedside clinical examination.
12. Learn about common x-ray findings, common orthotics and prosthetics.
13. Attend subspecialty clinics- arthritis, spine disorder, sports medicine clinics.
14. Learn common pathological specimen, instruments in Orthopaedics.
15. Learn how to take written informed consent for Orthopaedics procedures.
16. Learn to counsel patients for amputations and explaining care of amputation stump. (OR13.2).

17. Learn referral of patients to other departments based on warning signs. (OR14.3)

CERTIFIABLE PROCEDURAL SKILLS

The undergraduate learns:

1. Application of basic splints and slings (I)
2. Basic fracture and dislocation management (O)
3. Compression bandage (I)

Assessment plan

Formative assessment- Internal assessment:

Internal assessment examinations will be conducted at the end of 6th, 8th Semester and 9th Semester.

	Theory	Timing	Practical at the end of semester
IA 1	50Marks (10 MCQs , One structured LAQ of 10 marks and Six SAQs of 3 marks each)	End of 6 th semester	20 Marks(Short case, Table Viva) (To be converted out of 10)
IA 2	100Marks (20 MCQs , Two structured LAQ of 10 marks and Twelve SAQs of 3 marks each)	End of 8 th semester clinical posting	20 Marks(Short case, Table Viva) (To be converted out of 10)
Pre-professional	25 Marks in Surgery Paper II- Section A- Part 2 (5 MCQ's , 4-Five Short Answer Questions of 5 marks each)	End of 9 th semester	20 Marks (1 Short case of 10 Marks + Viva Voce 10 marks)

***Pre-Professional examination will be conducted in accordance with the pattern of the final examination for practical.**

Summative assessment at the end of 9th semester

Final professional examination will be conducted along with General Surgery paper

- Theory examination- Total Marks 25 in Surgery Paper II- Section A- Part 2
 - Five Multiple choice questions of 1 mark each
 - Four Short Answer Questions of 5 marks each
- Practical examination- Will be conducted along with Surgery dept.
 - Total marks- 20 (1 Short case 10 Marks + Viva Voce 10 Marks)

Eligibility Criteria:

Attendance	Theory	Clinics
General Surgery(Including Orthopedics, Anesthesia)	75%	80%
ENT/ Ophthalmology	75%	80%

Note: Student should obtain a minimum of 50% marks in Formative Assessment(Theory and Practical), in order to be eligible for the University Examination.

Model question paper:

Paper 2

Section A – 5 MCQ's out of 20 MCQ's (1*5=5)

1. Tuberculosis of the spine most likely originates from:
 - a. Intervertebral disk.
 - b. Cancellous vertebral body.
 - c. Ligamentous structures.
 - d. Paravertebral soft tissue.
2. Osteoblastic bone secondaries commonly arise from cancer of:
 - a. Breast.
 - b. Lung.
 - c. Prostate.
 - d. Adrenal.
3. The enzyme found in osteoclasts but not in osteoblasts is:
 - a. Alkaline phosphatase.
 - b. Acid phosphatase.
 - c. Elastase.
 - d. Cytochrome oxidase
4. Radial nerve palsy may occur in fr of humerus involving:
 - a. Surgical neck.
 - b. Shaft.
 - c. Lower end.
 - d. At all of the above locations.

5. Legg-Calve-Perthe's disease is
 - a. osteochondritis of the spine
 - b. tuberculosis of the hip joint
 - c. slipped proximal femoral epiphysis
 - d. osteochondritis of the proximal femoral epiphysis

Section B

Part 2: (4 *5=20 marks)

Short answers:

1. Describe etiopathogenesis and clinical features of rheumatoid arthritis.
2. Blood supply of head of femur and its clinical significance.
3. Carpal tunnel syndrome.
4. Colles' fracture

Recommended books for reading-

1. Outlines of Fractures, Adams, Crawford Churchill Livingstone.
2. Apley's Systems of Orthopaedics and fracture, Louis Solomon, Hodder Arnold.
3. Essentials of Orthopaedics, J Maheshwari, Jaypee Publications.
4. Clinical Orthopaedic Examination, Ronald Mcrae, Churchill Livingstone Elsevier.
5. Closed Treatment of Fractures H. John Charnley Churchill Livingstone
6. Outlines of Orthopaedics Crawford Adams Churchill Livingstone
7. A manual on Clinical Surgery S. Das S. DAS

Reference books-

1. Campbell's Operative Orthopaedics, Elsevier.
2. Rockwood and Green's Fractures in Adults, Lippincott Williams and Wilkins.
3. Tachdjian's Pediatric Orthopaedics, Saunders/ Elsevier.

INTERNSHIP – ORTHOPAEDICS

1 month of internship in Orthopaedics' (Including PMR) after passing final professional examination.

Goals of internship in Orthopaedics

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

(A) THERAPEUTIC- An intern must assist in:

1. Splinting (plaster slab) for the purpose of emergency splintage, definitive splintage and postoperative splintage and application of Thomas splint,
2. Manual reduction of common fractures – phalangeal, metacarpal, metatarsal and Colles' fracture,
3. Manual reduction of common dislocations – interphalangeal, metacarpophalangeal, elbow and shoulder dislocations,
4. Plaster cast application for undisplaced fractures of arm, fore arm, leg and ankle,

5. Emergency care of a multiple injury patient,
6. Transport and bed care of spinal cord injury patients.

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

1. Advise about prognosis of poliomyelitis, cerebral palsy, CTEV and CDH,
2. Advise about rehabilitation of amputees and mutilating traumatic and leprosy deformities of hand.

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

1. Drainage for acute Osteomyelitis,
2. Sequestrectomy in chronic Osteomyelitis,
3. Application of external fixation,
4. Internal fixation of fractures of long bones.

The student will record all the activities during the internship posting in a Log Book and competencies will be certified using appropriate evaluation methods

Physical Medicine and Rehabilitation Competencies

GOAL

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

(A) THERAPEUTIC- An intern must know:

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

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

1. Use of self-help devices and splints and mobility aids
2. Accessibility problems and home making for disabled
3. Simple exercise therapy in common conditions like prevention of deformity in polio, stump exercise in an amputee etc.
4. Therapeutic counseling and follow up

**Department of
Obstetrics & Gynecology**

MBBS curriculum

Department of Obstetrics and Gynaecology

I. Goals:

The department of obstetrics and gynaecology AIIMS Madurai sets a teaching goal for undergraduates to learn comprehensive women's health in pregnancy, acquiring knowledge and skills in treating common ailments affecting female reproductive health.

Objectives:

1. Providing a comprehensive understanding for the learners in pregnancy care and reproductive health
2. Developing skills in gynaecological examination and procedures
3. Teaching principles of family planning and contraceptive procedures
4. Educating students about prenatal, antepartum and intrapartum care. Highlighting the red flags in obstetric emergencies and its management. Imparting postpartum care and management of its complications
5. Enlightening with common gynaecological disorders including benign and malignant conditions and their treatment
6. Promoting sensitivity and effective communication in dealing with women's health issues.
7. Encouraging evidence base practice and research in obstetrics and gynaecology.
8. Exposure of students to recent advances in obstetrics and gynaecology and integrated teaching with other departments are made.
9. Students are provided with opportunities in counselling and health educating the patients.

II. Teaching methods:

Teaching medical students in obstetrics and gynaecology (OB-GYN) requires a combination of didactic lectures, clinical experience, practical skills training, and interactive learning. Here are some effective teaching methods and strategies for the OB-GYN curriculum:

Lectures:

- Start with foundational lectures covering anatomy, physiology, and basic concepts in OB-GYN.
- Use multimedia presentations, videos, and interactive tools to engage students.
- Organize symposiums for in-depth discussions on specific topics, encouraging critical thinking and problem-solving.

Clinical Rotations:

- Clinical exposure is crucial. Ensure that students spend time in OB-GYN clinics, labour and delivery units, and surgical theatres
- Encourage active participation, observation, and interaction with patients and healthcare providers.

- Preceptors should provide guidance, feedback, and opportunities for case presentations.

Simulation Training:

- Incorporate simulation-based learning using obstetric and gynaecological mannequins.
- Simulate scenarios such as normal deliveries, emergency situations, and surgical procedures.
- This allows students to practice skills in a controlled environment before working with real patients.

Case-Based Learning:

- Use real patient cases to teach clinical reasoning and decision-making skills.
- Encourage students to discuss the case, identify key issues, and develop management plans.
- Case discussions can be in small groups or online forums.

Hands-On Skills Workshops:

- Provide practical training in skills like pelvic examinations, pap smears, and suturing.
- Give students the opportunity to practice these skills on models or simulated patients.

Interactive Learning:

- Utilize interactive tools and quizzes self-assessment and reinforcement of knowledge.
- Engage students in discussions and debates on ethical and controversial topics in OB-GYN.

Problem-Based Learning (PBL):

- Implement PBL sessions where students work together to solve clinical problems or cases.
- Facilitate group discussions to encourage critical thinking and application of knowledge.

Multidisciplinary Training:

- Collaborate with other healthcare professionals such as nurses, midwives, and social workers to provide a holistic view of patient care.

Research:

- Encourage students to participate in research projects, ICMR short term studentship, etc. related to OB-GYN.
- This fosters a deeper understanding of evidence-based medicine.

Elective Rotations and Observerships:

- Offer elective rotations in specialized areas of OB-GYN, allowing students to explore their interests.
- Provide opportunities for students to shadow experienced practitioners.

Objective Structured Clinical Examination (OSCE) :

- Conduct OSCEs to assess clinical skills and knowledge.
- Create stations that mimic real clinical scenarios to evaluate students' performance.

Continual Assessment:

- Use regular quizzes, exams, and formative assessments to monitor students' progress.
- Provide timely feedback to help them improve.

Patient-Cantered Care:

- Emphasize the importance of patient communication, empathy, and cultural sensitivity.

Ethical and Legal Aspects:

- Teach students about the ethical and legal aspects of OB-GYN practice, including patient consent, confidentiality, and informed decision-making.

Mentorship:

- Assign mentors to medical students to provide guidance, answer questions, and offer career advice.

III. Teaching schedule:

- 1) Theory- Lecture, integrated teaching, tutorials, seminars, symposium
- 2) Bedside Clinics
- 3) Labour room posting
- 4) Integrated teaching hours

IV. Course content:

Teaching hours:	303 hours
Lectures:	-130 hours
Tutorials, symposium, integrated teaching	-172 hours

Clinical classes, ward postings, OT postings	} 22 weeks
Labour room postings	

Teaching hours:

Semester	Theory classes	SGT/SYP/TUT/IT*	
III	11 hours	-	
IV	17 hours	-	
V	15 hours	-	
VI	21 hours	21	
VII	34 hours	34	
VIII	21 hours	84	
IX	11 hours	33	
TOTAL	130	172	

SGT/SYP/TUT/IT* - Small Group Teaching, Symposium, Tutorials, Integrated Teaching.

Labour room postings (216 Hrs):

VII semester	7 days
VIII semester	10 days
IX semester	10 days
Total	27 days

Clinical postings:

III semester	4 weeks
IV semester	4 weeks
V semester	4 weeks
VIII semester	6 weeks
IX semester	4 weeks
TOTAL	22 weeks

OBSTETRICS & GYNAECOLOGY		
III semester	Introduction, Obstetric history taking components - Introduction, Obstetric index, Calculating period of gestation, chief complaints and history of presenting illness, first trimester history Part-1	
	Obstetric history taking components - Part 2-second and third trimester history, other components and summary	
	Demographic aspects of Family welfare	
	Physiology of Reproduction in Male & Female Family welfare-Need and services	
	Hormonal Contraceptives (oral)	
	Hormonal contraceptives (Injectable)	
	IUD, Selection , Action , Insertion, PPIUCD etc.	
	Sterilization operation (Male & Female)	
	MTP, M.R.Legal aspects , PNDT act	
	MTP,M.R-Methods & Complications	

	Doubts in Family planning ? Case scenarios Cafeteria approach	
	WHO medical eligibility criteria	
	Recent updates-contraception	
	Family planning indemnity scheme	
	Revision	
	Internal Assessment Test	
IV & V SEM	Introduction – Demographics and vital statistics - Birth Rate, Perinatal and Maternal Morbidity and Mortality	
	Fertilization, implantation, embryogenesis	
	Fetal growth and development	
	Endocrinology of pregnancy	
	Physiological changes during pregnancy	
	Preconceptional counselling	
	Diagnosis of pregnancy (including laboratory & Ultrasound diagnosis) Symptoms Presumptive of pregnancy; Signs of Pregnancy	
	Antenatal Care – Routine	
	Antenatal Care – High Risk	
	Nutrition in pregnancy	
	Anatomy and Physiology of normal labour (Introduce Partogram/labour care guide)	
	Normal Puerperium and lactation	
	Family Welfare Programme	
	Leucorrhoea	
	Normal Menstruation	
	Abortion	
	Medical Termination of pregnancy act	
	Ectopic pregnancy	
	Hydatid form mole	

V I& VII SEM	PNDT Act
	Normal labour
	Labour analgesia
	Abnormal labour
	Post-Partum Hemorrhage & Third stage complications
	Malposition, Malpresentations
	Contracted pelvis, CPD

	Obstructed labour
	Operative obstetrics
	Induction of labour
	Antepartum and intrapartum fetal surveillance (Ultrasound including Doppler and Electronic fetal monitoring)
	Newborn care
	Abnormal puerperium
	Post caesarean pregnancy
	Rupture uterus
	Multiple pregnancy, Hydramnios
	Ante-partum hemorrhage
	Fetal growth restriction
	Preterm labour, Prolonged pregnancy
	Premature rupture of membranes, intrauterine death of fetus
	Anaemia in pregnancy
	Hypertensive disorders in pregnancy
	Eclampsia
	Diabetes in pregnancy
	Rh. Incompatibility

	Heart Disease in pregnancy
	Infections during pregnancy
	Gynaecological disorders in pregnancy
VIII & IX SEM	Development of Genital tract and Mullerian anomalies
	Adolescent health, puberty disorders, amenorrhea
	Inter sex
	Genital tract infections
	Genital prolapse

	Pelvic inflammatory disease including TB
	Diseases of vulva
	Contraception
	Infertility
	Endoscopy in Gynaecology (Laparoscopy & hysteroscopy – Basics)
	Normal menstruation, menstrual abnormalities & AUB
	Fibroid uterus
	Endometriosis
	Screening for genital tract malignancies (clinical and laboratory methods)
	Pre-malignant lesion of endometrium and cervix
	Cancer cervix
	Uterine malignancies
	Ovarian tumors
	Gestational Trophoblastic Diseases
	Menopause
	Injuries of genital tract-RVF, CPT, VVF

Integrated teaching topics

1. Development of genital tract - any malformations of genital tract and their clinical significance – Anatomy
2. Fetal physiology - Fetal circulation Physiology, Paediatrics and neonatology
3. Fetal malformations - genesis- Embryology, Pediatrics and neonatology
4. Pathology and Transfusion Medicine: Blood Transfusion, Medicine, Anaesthesiology
5. Forensic medicine, community medicine: MTP/PCPNDT
6. Pharmacology: Teratogenic drugs in pregnancy
7. Pathology, medical and surgical oncology: Premalignant lesions
8. Medicine, Pathology: Anemia, heart disease
9. Anaesthesia, Emergency medicine: Basic resuscitation in the labour room
10. Radiodiagnosis: Ultrasonography
11. Skin and VD: Sexually Transmitted infections
12. Community medicine- Demographic aspects of family welfare

Symposium topics:

1. Convulsions in pregnancy
2. Induction of Labour
3. Bleeding in early pregnancy
4. Bleeding in late pregnancy
5. HIV-prevention of mother to child transmission
6. Puerperal fever & sepsis
7. PPH
8. Prevention of cancer cervix
9. Medical Management of DUB
10. Chemotherapy of Gestational Trophoblastic Disease
11. Uses of progestins in Obstetrics & Gynaecology
12. Antihypertensive in pregnancy
13. Chemotherapy in ovarian cancer
14. Post-menopausal bleeding

15. Tubal facts in infertility
16. Prostaglandins in obstetrics
17. Instrumental deliveries
18. Vomiting in pregnancy
19. Swelling of feet in pregnancy
20. Acute abdomen obstetrics
21. Physiological changes in pregnancy
22. Development of placenta and fetal circulation
23. Eclampsia
24. Supports of uterus/ Pelvic floor anatomy
25. Breech presentation
26. Antenatal care
27. Ectopic pregnancy
28. Episiotomy and perineal tears
29. Stages of Normal Labour
30. Molar Pregnancy
31. Antepartum fetal Surveillance - NST
32. Disorders of amniotic fluid Volume
33. Cesarean delivery
34. Puerperal infection
35. Oral Contraceptives
36. Iron Deficiency Anaemia in pregnancy
37. Normal Menstrual cycle & Regulation
38. Acute pain abdomen - Gynaecological Causes
39. Female sterilization
40. Classification of ovarian tumours - Germ cell tumours

Labour room skills

1. Informed consent
2. Monitoring of normal labour with partogram
3. Artificial rupture of membranes

4. Conduct of normal labour
5. Episiotomy
6. Forceps and Vacuum assisted vaginal deliveries
7. Assisted breech vaginal delivery
8. Active Management of third stage of labour (AMTSL)
9. PPIUCD
10. Puerperium (Breast feeding counselling, Puerperal sterilization)
11. Obstructed labour, Ruptured uterus.
12. Neonatal resuscitation
13. Preterm labour, PROM
14. Cervical cerclage
15. Informed consent for MTP
16. MTP techniques
17. Caesarean section
18. Universal precautions

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OBSTETRICS & GYNAECOLOGY									
Topic: Demographic and Vital Statistics competencies: (03)									
Number of procedures that require certification: (NIL)									
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG1.3	Define and discuss still birth and abortion	K	KH	Y	Lecture, Small group discussion	Short notes		Forensic Medicine & Toxicology	
Topic: Anatomy of the female reproductive tract (Basic anatomy and embryology) Number of competencies: (01)									
Number of procedures that require certification: (NIL)									
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Theory/ Skill station		Human Anatomy	
Topic: Physiology of conception competencies: (01)									
Number of procedures that require certification: (NIL)									
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis.	K	K	Y	Lecture, seminars	Theory		Physiology	

Topic: Development of the fetus and the placenta		Number of			Number of procedures that require certification : (NIL)				
competencies: (01)									
OG4.1	Describe and discuss the basic embryology of fetus, factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Preconception counselling		Number of			Number of procedures that require certification : (NIL)				
competencies:(02)									
OG5.1	Describe, discuss and identify pre-existing medical disorders and discuss their management; discuss evidence-based intrapartum care	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
OG5.2	Determine maternal high risk factors and verify immunization status	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
Topic: Diagnosis of pregnancy		Number of			Number of procedures that require certification : (NIL)				
competencies:(01)									
OG6.1	Describe, discuss and demonstrate the clinical features of pregnancy, derive and discuss its differential diagnosis, elaborate the principles underlying and interpret pregnancy tests.	S	SH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ Clinical assessment/ Viva voce			

Topic: Maternal Changes in pregnancy		Number of competencies: (01)			Number of procedures that require certification : (NIL)				
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal system in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Topic: Antenatal Care		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
OG8.1	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors.	K	KH	Y	Small group discussion, Bedside clinics, Lecture	Written/ voce/ assessment	Viva Skill	Community Medicine	
OG8.2	Elicit document and present an obstetric history including menstrual history, last menstrual period, previous obstetric history, comorbid conditions, past medical history and surgical history	K/S	SH	Y	Small group discussion, Bedside clinics, Lecture	Written/ voce/ assessment	Viva Skill		

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG8.3	Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being;	K/S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well-being	K/S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
OG8.5	Describe and demonstrate pelvic assessment in a model	K/S	SH	Y	DOAP session	Skill assessment			
OG8.6	Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OG8.7	Enumerate the for and types of vaccination in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG8.8	Enumerate the indications and describe the investigations including the use of ultrasound in the initial assessment and monitoring in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Complications in early pregnancy Number of competencies: (05) Number of procedures that require certification: (NIL)									
OG9.1	Classify, define and discusses the etiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	
OG9.3	Discuss the etiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical management	K	KH	Y	Lecture, Small group discussion	Written/ voce Viva			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG9.4	Discuss the clinical features, laboratory investigations, ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
OG9.5	Describe the etiopathology, impact on maternal and fetal health and principles of management of hyperemesis gravidarum	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Antepartum haemorrhage		Number of competencies: (02)			Number of competencies that require certification: (NIL)				
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical features, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinic				
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management.	K	KH	Y	Lecture, Small group discussion			Pathology	
Topic: Multiple pregnancies		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
OG11.1	Describe the etiopathology, clinical features, diagnosis and investigations, complications, principles of management of multiple pregnancies	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
Topic: Medical Disorders in pregnancy		Number of competencies: (08)			Number of procedures that require certification: (NIL)				

OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill			General Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill		General Medicine
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill		General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill		General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill		General Medicine

OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver disease in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill			General Medicine
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill			General Medicine
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of isoimmunization in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/assessment	Viva Skill			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Labour		Number of competencies: (05)			Number of procedures that require certification: (01)				
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito-anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	Lecture, Small group discussion (with models/ videos/ AV aids, etc.)	Theory/Clinical assessment/ Viva voce			
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			

OG13.3	Observe/ assist in the performance of an artificial rupture of membranes	S	SH	N	DOAP session, Bedside clinic	Skill assessment			
OG13.4	Demonstrate the stages of normal labor in a simulated environment / Mannequin and counsel on methods of safe abortion.	S	SH	Y	DOAP session	Skill assessment			
OG13.5	Observe and assist the conduct of a normal vaginal delivery	S	P	Y	DOAP session	Log book	10		

Topic: Abnormal Lie and Presentation; Maternal Pelvis **Number of competencies: (04)** **Number of procedures that need certification : (NIL)**

OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ voice/ assessment	Viva Skill		Human Anatomy
OG14.2	Discuss the mechanism of normal labor, Define and describe obstructed labor, its clinical features; prevention; and management	K	KH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ voice/ assessment	Viva Skill		

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ voice/ assessment	Viva Skill		

OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labor	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
Topic: Operative obstetrics Number of competencies: (02) Number of procedures that require certification: (NIL)									
OG15.1	Enumerate and describe the indications and steps of common obstetric procedures, technique and complications: Episiotomy, vacuum extraction; low forceps; Caesarean section, assisted breech delivery; external cephalic version; cervical cerclage	S	KH	Y	Lecture, Small group discussion, seminars	Written/ skill assessment			
OG15.2	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/Assist in operative obstetrics cases – including - CS, Forceps, vacuum extraction, and breech delivery	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Complications of the third stage Number of competencies: (03) Number of procedures that require certification: (NIL)									
OG16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
OG16.2	Describe and discuss uterine inversion – causes, prevention, diagnosis and management.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations; monitoring of fetal well-being, including ultrasound and fetal Doppler; principles of management; prevention and counselling in intrauterine growth retardation	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment/ Viva voce			
Topic: Lactation Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG17.1	Describe and discuss the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding	S/A/C	SH	Y	DOAP session	Skill assessment			
OG17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Care of the new born Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics

OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva			Pediatrics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Normal and abnormal puerperium. Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG19.1	Describe and discuss the physiology of puerperium, its complications, diagnosis and management; counselling for contraception, puerperal sterilization	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce	Viva		
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG19.3	Observe/ assist in the performance of tubal ligation	S	KH	Y	DOAP session, intraoperative	Skill assessment			
OG19.4	Enumerate the indications for, describe the steps in and insert and remove an intrauterine device in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Medical termination of pregnancy Number of competencies: (03) Number of procedures that require certification: (NIL)									

OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of Medical Termination of Pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal-Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Contraception		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment		Community medicine	
OG21.2	Describe & discuss PPIUCD programme	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Vaginal discharge		Number of competencies: (02)			Number of procedures that require certification : (NIL)				

OG22.1	Describe the clinical characteristics of physiological vaginal discharge.	K	KH	Y	Lecture	Theory			
OG22.2	Describe and discuss the etiology (with special emphasis on Candida, T. vaginalis, bacterial vaginosis), characteristics, clinical diagnosis, investigations, genital hygiene, management of common causes and the syndromic management	K	KH	Y	Lecture, Bedside clinics	Written/voce/ Viva Skill assessment			

Topic: Normal and abnormal puberty

Number of competencies: (03)

Number of procedures that require certification : (NIL)

OG23.1	Describe and discuss the physiology of puberty, features of abnormal puberty, common problems and their management	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce	Viva		
OG23.2	Enumerate the causes of delayed puberty. Describe the investigation and management of common causes	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		
OG23.3	Enumerate the causes of precocious puberty	K	K	N	Lecture, Small group discussion	Written/voce	Viva		

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration

Topic: Abnormal uterine bleeding

Number of competencies: (01)

Number of procedures that require certification: (NIL)

OG24.1	Define, classify and discuss abnormal uterine bleeding, its aetiology, clinical features, investigations, diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		

Topic: Amenorrhea		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
OG25.1	Describe and discuss the causes of primary and secondary amenorrhea, its investigation and the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		
Topic: Genital injuries and fistulae		Number of competencies: (02)			Number of procedures that require certification: (NIL)				
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigation and implications on health and fertility and management of endometriosis and adenomyosis	K/S	KH	Y	Lecture, Small group discussion	Written/voce	Viva		
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/voce	Viva		General Surgery
Topic: Genital infections		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
OG27.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of sexually transmitted infections	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		
OG27.2	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of genital tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		
OG27.3	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of HIV	K	KH	Y	Lecture, Small group discussion	Written/voce	Viva		

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG27.4	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease	K	KH	Y	Lecture, Small group discussion	Written/ voce Viva			
Topic: Infertility Number of competencies:(04) Number of procedures that require certification: (NIL)									
OG28.1	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility – methods of tubal patency, ovulation induction, assisted reproductive techniques	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ voce Viva			
OG28.2	Enumerate the assessment and restoration of tubal latency	K	K	N	Lecture, seminars, Bedside clinics	Written/ voce Viva			
OG28.3	Describe the principles of ovulation induction	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ voce Viva			
OG28.4	Enumerate the various Assisted Reproduction Techniques	K	K	N	Lecture, seminars, Bedside clinics	Written/ voce Viva			
Topic: Uterine fibroids Number of competencies: (01) Number of procedures that require certification: (NIL)									
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis; investigations; principles of management, complications of fibroid uterus	K/A/C	KH	Y	Lecture, Bedside clinics	Theory/ OSCE/ Clinical Assessment/ Viva voce			

Topic: PCOS and hirsutism		Number of competencies: (02)			Number of procedures that require certification: (NIL)				
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis; investigations; management, complications of PCOS	K/A/C	KH	Y	Lecture	Theory/ OSCE/ Clinical Assessment/ Viva voce			
OG30.2	Enumerate the causes and describe the investigations and management of hyperandrogenism	K	KH	N		Theory/ OSCE/ Clinical Assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Uterine prolapse		Number of competencies: (01)			Number of procedures that require certification :(NIL)				
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus	K/S	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Menopause		Number of competencies: (02)			Number of procedures that require certification : (NIL)				
OG32.1	Describe and discuss the physiology of menopause, symptoms, prevention, management and the role of hormone replacement therapy.	K	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			

OG32.2	Enumerate the causes of postmenopausal bleeding and describe its management	K	KH	Y	Lecture, small group discussion Bedside clinics	Written/voce Viva			
Topic: Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix that require certification: (NIL) Number of competencies: (04) Number of procedures									
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/ assessment Viva Skill			
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/voce/ assessment Viva Skill			General Surgery
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy	K	K	Y	Lecture, Small group discussion, Bedside clinics	Viva voce/ Written			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Benign and malignant diseases of the uterus and the ovaries that require certification : (NIL)					Number of competencies: (04) Number of procedures				
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer	K	KH	Y	Lecture, Bedside clinics	Viva voce/ Written/ skill assessment			
OG34.2	Describe and discuss the etiology, pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principal of management including staging laparotomy	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/ Viva voce			
OG34.3	Describe and discuss the etiology, pathology, classification, staging, clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/			
OG34.4	Operative Gynaecology: Understand and describe the technique and complications: Dilatation & Curettage (D&C); EA-ECC; cervical biopsy; abdominal hysterectomy; myomectomy; surgery for ovarian tumours; staging laparotomy; vaginal hysterectomy including pelvic floor repair; Fothergill's operation, Laparoscopy; hysteroscopy; management of postoperative complications	K/S	SH	Y	Videos, on manikins, observe procedures and surgeries in OR	Viva voce			
Topic: Obstetrics & Gynecological skills - I					Number of competencies: (17) Number of procedures that require certification: (NIL)				

OG35.1	Obtain a logical sequence of history, and perform a humane and thorough clinical examination, excluding internal examinations (per- rectal and per- vaginal)	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.2	Arrive at a logical provisional diagnosis after examination.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.5	Determine gestational age, EDD and obstetric formula	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.6	Demonstrate ethical behavior in all aspects of medical practice.	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.7	Obtain informed consent for any examination or procedure	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			

OG35.8	Write a complete case record with all necessary details	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.9	Write a proper discharge summary with all relevant information	S	SH	Y	Bedside clinics	Clinical assessment			
OG35.10	Write a proper referral note to secondary or tertiary centres or to other physicians with all necessary details.	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.11	Demonstrate the correct use of appropriate universal precautions for self-protection against HIV and hepatitis and counsel patients	S	SH	Y	DOAP session	Skill assessment			
OG35.12	Obtain a PAP smear in a stimulated environment	S	SH	Y	DOAP session	Skill assessment			
OG35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated / supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.16	Diagnose and provide emergency management of antepartum and postpartum hemorrhage in a simulated / guided environment	K/S	SH	Y	DOAP session	Skill assessment			

OG35.17	Demonstrate the correct technique of urinary catheterisation in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Obstetrics & Gynecological skills - II Number of competencies: (03) Number of procedures that require certification: (NIL)									
OG36.1	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration (a) Patient (b) Disease (c) Socio-economic status (d) Institution/ Governmental guidelines.	K/S	SH	Y	Bedside clinics/ Small group discussion	Clinical assessment/ Viva voce			
OG36.2	Organise antenatal, postnatal, well-baby and family welfare clinics	K/S	KH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG36.3	Demonstrate the correct technique of punch biopsy of uterus in a simulated/ supervised environment	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
Topic: Obstetrics & Gynecological skills - III Number of competencies: (07) Number of procedures that require certification: (NIL)									
OG37.1	Observe and assist in the performance of a Caesarean section	K/S/A/C	SH	Y	Bedside clinics/ Small group discussion	Log book			
OG37.2	Observe and assist in the performance of Laparotomy	K/S/A/C	SH	Y	Bedside clinics/ Small group discussion	Clinical assessment/ Viva voce			
OG37.3	Observe and assist in the performance of Hysterectomy – abdominal/vaginal	K/S/A/C	SH	Y	Bedside clinics/ Small group discussion	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.5	Observe and assist in the performance of Endometrial aspiration - endocervical curettage (EA-ECC)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Viva voce			
OG37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Topic: Should observe Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG38.1	Laparoscopy	K/S/A/C	KH	Y	Bedside clinic, Small group discussion	Clinical assessment/ Viva voce			
OG38.2	Hysteroscopy	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.3	Lap sterilization	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			

OG38.4	Assess the need for and issue proper medical certificates to patients for various purposes	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

V. Assessment plan:

Internal assessment - Attendance:

Eligibility to appear for examination

Attendance in theory classes	= 75 %
Attendance in practical classes	= 80 %
Internal Assessment Marks	= 50%

Marks qualifying for pass

- 50% in Theory
- 50% in Theory including Viva-Voce-50% in Practical
- 50% in Internal Assessment Theory
- 50% in Internal Assessment Practical
- 50% in Total Aggregate

Students cannot appear in part or separately in individual subjects during the first appearance in professional examinations.

If the candidate fails in either theory or practical examination, he/she has to appear again for both theory and practical examination of the concerned subject.

No grace marks will be allowed for any of the subjects of final MBBS part II

Re totalling of theory papers alone will be permitted and retotalling of practical marks is not permitted.

Re-evaluation of theory papers will not be permitted under any circumstances. No precedence will be accepted in this regard.

No student shall be permitted to any one of the parts of MBBS examinations unless he/she has attended the course in the subjects for the prescribed period and produce the necessary certificate of study, attendance and progress from the head of the department.

There shall be no condonation of lack of attendance, and the candidate who lacks attendance (75%) will be detained from appearing examination.

IA THEORY:

SEMESTER	III	V	VI	VIII	IX (Pre-professional)
MARKS	100	100	100	100	200

IA PRACTICAL:

SEMESTER	III	IV	V	VII	VIII	IX(PRE-PROFESSIONAL)
MARKS	100	100	100	100	100	200

MARKS DISTRIBUTION:

IA THEORY:

Average marks of (n-1) Internal assessment theory (50%)- 100

Pre professional exam (50%) - 100

200

IA PRACTICAL:

Long case obstetrics-80

Long case gynecology-80

Viva voce -20

Log book-20

200

Final professional exam

Name of the Subject	Evaluation parameter	Maximum Marks	Passing minimum
Obstetrics & Gynecology	Written (2 Papers) Final Professional	200	100
	Practical Final Professional	200 (Obstetric long case- 80 Gynecology long case – 80) OSCE-20 marks Viva voce with four stations on pelvis, family planning, instruments and specimens-20 marks	100
	Internal Assessment Theory*	200	100
	Internal Assessment Practical*	200	100
	Overall (Total)	800	400

*Described above

VI. Recommended books

Text Books:

- 1) Holland and Brews Manual of Obstetrics– by Murlidhar Pai, Prahalad Kushtagi, Shrish Daftary
- 2) Howkins & Bourne, Shaw's Textbook of Gynaecology by Sunesh Kumar, Shirish Daftari & V. Padubidri
- 3) DC Dutta's Textbook of Obstetrics by Hiralal Konar
- 4) DC Dutta's Textbook of Gynaecology by Hiralal Kona
- 5) Text Book Of Obstetrics by Sheila Balakrishnan
- 6) Textbook of Gynaecology by Sheila Balakrishnan
- 7) Mudaliar and Menon's Clinical Obstetrics by Sarala Gopalan, Dr. S. Rathnakumar, Dr. Vanita Jain
- 8) Practice of fertility control, S.K. Chaudhuri

Reference Books:

- 1) Williams Obstetrics, by F. Gary Cunningham (Author), Kenneth Leveno (Author), Steven Bloom (Author)
- 2) Jeffcoate's Principles of Gynaecology by Malhotra Narendra
- 3) Ian Donald's Practical Obstetrics Problems, by Renu Misra
- 4) Arias' Practical Guide to High-Risk Pregnancy and Delivery: A South Asian Perspective by Fernando Arias (Editor), Amarnath G Bhide (Editor), Arulkumaran S (Editor), Kaizad Damania (Editor), Shirish N Daftary
- 5) Dewhurst's Textbook of Obstetrics & Gynaecology, Keith Edmonds (Editor-in-Chief), Christoph Lees (Co Editor), Tom Bourne (Co-Editor)
- 6) Berek and Novak Gynaecology

VII. Record/ log book maintenance

The students will be provided with obstetrics and gynaecology case record wherein they are instructed to fill up the case records during the clinical, ward and labour room postings which will be assessed in the department. 20 Marks for log book will be included in Internal assessment practical examination.

MODEL QUESTION PAPERS

Obstetrics including Social Obstetrics

Paper - 1

Time: Three Hours

Maximum Marks: 100

ANSWER ALL QUESTIONS

Each Section to be answered in separate answer book

Section A

I. MCQs-

20 x 1 = 20 marks

Section B

Long answer question:

1 x 10 = 10 marks

1. Discuss the diagnosis and management of intrauterine growth restriction

Short answer questions

6 x 5 = 30 marks

1. Management of first stage of labour
2. Management of eclampsia
3. Medical management of post-partum haemorrhage
4. Methods of cervical ripening
5. Clinical features and evaluation of vesicular mole
6. Indications and complications of vacuum delivery

Section C

Long answer question:

1 x 10 = 10 marks

1. Describe the clinical features, diagnosis and treatment of ruptured ectopic pregnancy.

Short Notes:

6 x 5 = 30 marks

1. Parenteral iron therapy in pregnancy
2. Missed abortion
3. Methods of testing for antepartum foetal well being
4. Resuscitation of the newborn
5. Physiology of lactation
6. Define maternal mortality ratio. Discuss causes of maternal mortality.

Gynaecology including Family Welfare and Demography

Paper - 2

Time: Three Hours

Maximum Marks: 100

ANSWER ALL QUESTIONS

Each Section to be answered in separate answer book

Section A

I. MCQs-

20 x 1 = 20 marks

Section B

Long answer question:

1 x 10 = 10 marks

1. What are the causes of mass descending per vaginum in a 30 years old woman?
How will you manage genital prolapse in this patient?

Short answer question:

6 x 5 = 30 marks

1. Tests for tubal patency
2. Causes and evaluation of postmenopausal bleeding
3. Management of stress urinary incontinence
4. Fractional Curettage
5. Trichomonas vaginitis – diagnosis and treatment
6. Discuss the clinical features of fibroid uterus

Section C

Long Essay:

1 x 10 = 10 marks

1. Discuss the diagnosis and management of malignant ovarian tumour

Short Notes:

6 x 5 = 30 marks

1. Medical management of endometriosis
2. Polycystic ovarian syndrome – diagnosis and management
3. Minilap tubectomy
4. Intrauterine contraceptive devices
5. Conization – indications and technique
6. Human chorionic gonadotrophin

Faculty details

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