

**Ordinance Governing  
Third Professional Year  
Part I of M.B.B.S. Degree Course  
Revised  
Syllabus / Curriculum  
2021 - 22**



**Accredited 'A+' Grade by NAAC (3<sup>rd</sup> Cycle)  
Placed in Category 'A' Grade by MoE (GoI)**

**KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH**

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## VISION

To be an outstanding KAHER of excellence ever in pursuit of newer horizons to build self reliant global citizens through assured quality educational programs.

## MISSION

- To promote sustainable development of higher education consistent with statutory and regulatory requirements.
- To plan continuously provide necessary infrastructure, learning resources required for quality education and innovations.
- To stimulate to extend the frontiers of knowledge, through faculty development and continuing education programs.
- To make research a significant activity involving staff, students and society.
- To promote industry / organization, interaction/collaborations with regional/national / international bodies.
- To establish healthy systems for communication among all stakeholders for vision oriented growth.
- To fulfill the national obligation through rural health missions.

## OBJECTIVES

The objectives are to realize the following at KAHER and its constituent institutions:

- To implement effectively the programs through creativity and innovation in teaching, learning and evaluation.
- To make existing programs more careers oriented through effective system of review and redesign of curriculum.
- To impart spirit of enquiry and scientific temperament among students through research oriented activities.
- To enhance reading and learning capabilities among faculty and students and inculcate sense of life long learning.
- To promulgate process for effective, continuous, objective oriented student performance evaluation.
- To ordinate periodic performance evaluation of the faculty.
- To incorporate themes to build values, Civic responsibilities & sense of national integrity.
- To ensure that the academic, career and personal counseling are in-built into the system of curriculum delivery.
- To strengthen, develop and implement staff and student welfare programs.
- To adopt and implement principles of participation, transparency and accountability in governance of academic and administrative activities.
- To constantly display sensitivity and respond to changing educational, social, and community demands.
- To promote public-private partnership.

## INSIGNIA



The Emblem of the KAHER is a Philosophical statement in Symbolic.

### ***The Emblem...***

A close look at the emblem unveils a pillar, a symbol of the “KAHER of Excellence” built on strong values & principles.

### ***The Palm and the Seven Stars...***

The Palm is the palm of the teacher- the hand that acts, promises & guides the students to reach for the Seven Stars...

The Seven Stars signify the ‘Saptarishi Dnyanamandal’, the Great Bear-a constellation made of Seven Stars in the sky, each signifying a particular Domain. Our culture says: The true objective of human birth is to master these Knowledge Domains.

The Seven Stars also represent the Saptarishis, the founders of KLE Society whose selfless service and intense desire for “Dnyana Dasoha” laid the foundation for creating the knowledge called KLE Society.

Hence another significance of the raised palm is our tribute to these great Souls for making this KAHER a possibility.

### ***Empowering Professionals...***

‘Empowering Professionals’, inscription at the base of the Emblem conveys that our Organization with its strength, maturity and wisdom forever strive to empower the student community to become globally competent professionals. It has been a guiding force for many student generations in the past, and will continue to inspire many forthcoming generations.



## KLE Academy of Higher Education & Research

(Formerly known as KLE UNIVERSITY)

[Established under Section 3 of the UGC Act, 1956 vide Government of India Notification No. F. 9-19/2000-U.3(A)]

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Ref. No. KAHER/AC/22-23/D-18062207

23<sup>rd</sup> May, 2022

### NOTIFICATION

Sub: **Ordinance governing syllabus/curriculum for the Competency Based Under-Graduate Curriculum for MBBS Phase-III (Part 1) Course.**

Ref : Minutes of the meeting of the Academic Council of the KAHER held on 1<sup>st</sup> April, 2022.

In exercise of the powers conferred under Rule A-04 (i) of the Memorandum of Association of the KAHER, the Academic Council of the KAHER in its meeting held on **1<sup>st</sup> April, 2022** has approved the Ordinance governing the syllabus / curriculum of **Competency Based Under-Graduate Curriculum for MBBS Phase-III (Part 1)**

The Ordinance shall be effective for the students admitted to **MBBS Phase-III (Part 1)** under the **Faculty of Medicine** in the constituent college of the KAHER viz. J. N. Medical College, Belagavi from the academic session **2021-22** onwards.

By Order

**REGISTRAR**

To

The Dean  
Faculty of Medicine,  
KAHER,  
BELAGAVI.

CC to :

1. The PA to Hon. Chancellor, KAHER, Belagavi.
2. The Special Officer to Hon, Vice-Chancellor, KAHER, Belagavi.
3. The Principal, J.N. Medical College, Belagavi.
4. All Officers of the KAHER - Academic Affairs / Examination Branch.
5. The Secretary, University Grants Commission, New Delhi,

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# **Curriculum for Third Professional Year Part I of MBBS Degree Course**

## **Preamble**

The National Medical Commission visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, their management and impact of advances in science and technology also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

As per the NMC recommendations, the thrust in the new regulations is continuation and evolution of the thought in medical education making it more learner-centric, patient-centric, gender sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends.

The learners in the III/I Professional year will be learning about the diseases related to Eyes, Ears, Nose & Throat, the clinical examinations skills, diagnosis and planning management. Students will continue to learn Forensic Medicine & Toxicology encompassing and imbibing socio-ethical and professional values in relation to law and medicine; and deal with medico legal issues pertaining to

patients, evidence, court and laws related to medical toxicological practice. Students will continue to learn community medicine, national and regional health care policies, frameworks, economics and systems that influence health promotion, healthcare delivery, disease prevention, effectiveness, responsiveness, quality and patient safety. They will be posted to clinical wards, OPDs, OT, other hospital settings and field and family visits to understand and acquire clinical skills along with basic administrative policies. Like previous professional years, emphasis will be made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment.

Skill acquisition is an indispensable component of the learning process in medicine. Since the learners are in Clinical postings, a significant attempt has been made in the curriculum with reinforcement on certification of certain essential skills, As per the recommendations in CBME booklet, various factors have been considered like, in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and interdisciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender. Apart from these, due importance is given to cocurricular, and Sports and Extra-curricular activities as well for the overall development of students. In addition to the above, Formative and internal assessments have been planned and aligned to achieve the objectives of the curriculum with minor tweaks to the summative assessment.

All the attempts have been made to make the curriculum student centered, providing opportunities for learners to learn in a safe and conducive environment, including all the aspects of Integration, skill acquisition, AETCOM competencies and Assessment, for the effective implementation of the new curriculum.

The syllabus/curriculum shall be effective for the students admitted to the MBBS degree course in the constituent college of the KAHER viz J. N. Medical College, Belagavi from academic session 2019-20 onwards, entering into Professional Year III/I, in academic session 2021-22 onwards.

# **Graduate Medical Education Regulation 2019 (GMER)**

## **Amendment Notification November 2019 (Ref No. MCI-34(41)/2019-Med./161726)**

In exercise of the powers conferred by Section 33 of the Indian Medical Council Act, 1956 (102 of 1956), the Board of Governors in super-session of Medical Council of India with the previous sanction of the Central Government, made the following Regulations to further amend the "Regulations on Graduate Medical Education , 1997", namely:-

- (i) These Regulations may be called the "Regulations on Graduate Medical Education (Amendment),2019.
- (ii) They shall come into force from the date of their publication in the Official Gazette.

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

### **Indian Medical Graduate Training Programme**

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

#### **National Goals**

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

- (a) Recognize "health for all" as a national goal and health right of all citizens and by undergoing training for medical profession to fulfill his/her social obligations towards realization of this goal.
- (b) Learn every aspect of National policies on health and devote her/him to its practical implementation.

- (c) Achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) Become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

### **Institutional Goals**

In consonance with the national goals each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities; be familiar with the administration of "essential medicines" and their common adverse effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- (e) Possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.

- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programmes including practical aspects of the following:
  - (i) Family Welfare and Maternal and Child Health(MCH)
  - (ii) Sanitation and water supply
  - (iii) Prevention and control of communicable and non-communicable diseases
  - (iv) Immunization
  - (v) Health Education
  - (vi) Indian Public Health Standards (IPHS), at various levels of service delivery
  - (vii) Bio-medical waste disposal
  - (viii) Organizational and/or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, hospital management, inventory skills and counselling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the Certifiable procedural skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate.

## **Goals and Roles for the Learner**

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

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

## **Competency Based Training Programme of the Indian Medical Graduate**

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

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

- Demonstrate knowledge of normal human structure, function and development from a molecular,cellular, biologic, clinical, behavioural and social perspective.
- Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.
- Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission

(NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.

- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
  - Disease prevention,
  - Health promotion and cure,
  - Pain and distress alleviation, and
  - Rehabilitation.

- Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

### **Leader and member of the health care team and system**

- Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancers, in collaboration with other members of the health care team.

### **Communicator with patients, families, colleagues and community**

- Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.

- Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trust worthy.
- Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.
- Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

**Lifelong learner committed to continuous improvement of skills and knowledge**

- Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.
- Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.
- Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.
- Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.
- Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

**Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession**

- Practice selflessness, integrity, responsibility, accountability and respect.
- Respect and maintain professional boundaries between patients, colleagues and society.
- Demonstrate ability to recognize and manage ethical and professional conflicts.
- Abide by prescribed ethical and legal codes of conduct and practice.

- Demonstrate a commitment to the growth of the medical profession as a whole

### **Broad Outline on training format**

In order to ensure that training is in alignment with the goals and competencies

There shall be a “Foundation Course” to orient medical learners to MBBS programme, and provide them with requisite medical knowledge, Good communication (including electronic), technical and language skills.

The curricular contents shall be vertically and horizontally aligned and integrated to the maximum extent possible in order to enhance learner’s interest and eliminate redundancy and overlap.

Teaching-learning methods shall be learner centric and shall predominantly include small group learning, interactive teaching methods and case based learning.

Clinical training shall emphasize early clinical exposure, skill acquisition, certification in essential skills; community/primary/secondary care-based learning experiences and emergencies.

Training shall primarily focus on preventive and community based approaches to health and disease, with specific emphasis on national health priorities such as family welfare, communicable and non- communicable diseases including cancer, epidemics and disaster management.

Acquisition and certification of skills shall be through experiences in patient care, diagnostic and skill laboratories.

The development of ethical values and overall professional growth as integral part of curriculum shall be emphasized through a structured longitudinal and dedicated programme on professional development including attitude, ethics and communication.

Progress of the medical learner shall be documented through structured periodic assessment that includes formative and summative assessments. Logs of skill-based training shall be also maintained.

Appropriate Faculty Development Programmes shall be conducted regularly by institutions to facilitate medical teachers at all levels to continuously update their

professional and teaching skills, and align their teaching skills to curricular objectives.

Professional Year III part I (12 months)]: will consist of Para-clinical subjects namely Community Medicine, Forensic Medicine and Toxicology; clinical subjects Ophthalmology, Otorhinolaryngology (ENT) & Professional development including Attitude, Ethics & Communication (AETCOM) module and Pandemic module.

Dedicated teaching hours are prescribed for all subjects which includes lectures, Small group learning (Tutorials / Seminars)/Integrated learning, Self Directed learning, Clinical postings.

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

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

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

Professional Development including Attitude, Ethics and Communication will be done through a modular approach (AETCOM Module) spread through out the year.

## Teaching Hours : For Third Professional Year Part I MBBS Course

**Table No 1**

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

### **Clinical Course: Clinical Postings.**

During third to ninth terms, clinical postings of three hours duration daily as specified in the Table 2 is suggested for various departments after introductory course in clinical Methods in Medicine and Surgery of two weeks each for the whole class at the start of 3<sup>rd</sup> term.

**Table 2 : Clinical postings**

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

- 1) This posting includes exposure to laboratory medicine and infectious diseases
- 2) This includes maternity training and the 3<sup>rd</sup> semester posting shall be in Family Welfare Planning.
- 3) This posting includes exposure to Rehabilitation and Physiotherapy
- 4) This posting includes training in Radio-diagnosis and Radiotherapy where existent

# Assessment

## Eligibility to appear for Professional examinations

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

### 1. Attendance

Attendance requirements are 75% in theory and 80% in practical /clinical for eligibility to appear for the examinations in that subject. In subjects that are taught in more than one phase – the learner must have 75% attendance in theory and 80% in practical in each phase of instruction in that subject.

#### 1.1 Eligibility to appear in Phase III Examination

- a) Passing in II Phase Examination is not compulsory before entering for 6<sup>th</sup> term training; however passing of all subjects of II Phase Examination is compulsory for being eligible for III Phase Part I examination.
- b) Passing in III Phase - Part I examination is not compulsory before entering for 8<sup>th</sup> and 9<sup>th</sup> term training, however passing of all subjects of III Phase - Part I examination is compulsory for being eligible, for III Phase Part II Examination

**2. Internal Assessment:** Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

- a) Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each clinical subject.

- b) Theory : Minimum of three examinations is recommended. The examination preceding the university examination may be similar to the University (KAHER)examination. Average marks of all notified internal examinations should be reduced to the marks allotted for internal assessment for each subject and should be sent to the university .
- c) Practical / Clinical : A minimum of one clinical test may be conducted at the end of each ward posting in all the clinical subjects. At least two ward leaving tests in Paediatrics, Orthopedics, Ophthalmology and Otorhinolaryngology and three ward leaving tests in Medicine, Surgery and Obstetrics and Gynaecology are recommended. Second end posting test must include OSCE in addition to clinical test. Average of all examination marks should be taken into consideration while calculating the marks of the internal assessment.
- d) Day to day records and log book (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.
- e) Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject. Internal assessment marks will reflect as separate head of passing at the summative examination.
- f) The results of internal assessment should be displayed on the notice board within 1-2 weeks of the test. University shall guide the college regarding formulating policies for remedial measures for students who are either not able to score qualifying marks or have missed on some assessments due to any reason.
- g) Learners must have completed the required certifiable competencies for that phase of training and completed the log book appropriate for that

phase of training to be eligible for appearing at the final university examination of that subject.

- h) The internal assessment marks of both theory and practical obtained by the candidates should be sent to the university at least fifteen days prior to the commencement of theory examination.

**University (KAHER) Examinations for Professional year Third part I shall be held as under:**

The III/I Professional examination shall be held at the end of Third professional training in the subjects of Ophthalmology, Otorhinolaryngology and HNS (ENT&HNS), Community Medicine, Forensic Medicine & Toxicology.

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

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

Time allotted excludes time reserved for internal / University examinations, and vacation.

III/I professional clinical postings shall commence before / after declaration of results of the Second professional phase examinations, as decided by the institution/ University. Third Professional parts II clinical postings shall start no later than two weeks after the completion of the previous professional examination. 25% of allotted time of third Professional shall be utilized for integrated learning with pre- and para- clinical subjects. This will be included in the assessment of clinical subjects.

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

The distribution of marks for theory and practical /clinical examination for various subjects of Phase III, part I and Part II are shown in tables - 3 and 4

**Criteria for passing in a subject:** A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in that subject, as stipulated below : (refer table 3 & 4).

**Table-3 Distribution of Marks for University Examination of Phase III Part I Subjects**

<b>Subjects</b>	<b>Community Medicine</b>	<b>Ophthalmology</b>	<b>Otorhinolar yng-ology</b>	<b>Forensic medicine and Toxicology</b>
A Theory				
<b>1.</b> Written Paper, No of Papers and Maxim um marks for each paper*	2x100=200	1x100 = 100	1x100=100	1x100 = 100
Total Theory	200	100	100	100

**ONE short answer question ( 3 marks ) should be included in each subject (Ophthalmology, ENTand Community Medicine) on knowledge-competencies acquired during AETCOM modules.**

**Table-4**

1. Practical/ Clinical	80	80	80	80
2. Viva-Voce	20	20	20	20
Total Practical/ Clinical	100	100	100	100
<b>Grand Total</b>	<b>300</b>	<b>200</b>	<b>200</b>	<b>200</b>

**At least one component (10 marks) of clinical/practical and viva-voce should assess skills- competencies acquired on AETCOM modules in each subject (Ophthalmology, ENT , Forensic medicine and toxicology and Community Medicine).**

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

\* **Note** Written theory paper of University examination (KAHER) should include MCQ section which carries 20% of the total marks for the theory paper

### **1.1 Declaration of Class**

#### **a. Distinction**

A candidate having appeared in all the subjects in the same examination and passes that examination in the First Attempt and secures 75% of marks or more of grand total marks prescribed will be declared to have passed the examination with distinction.

#### **b. First Class**

A candidate having appeared in all the subjects in the same examination and passes that examination in the First Attempt and secures 65% marks or more but less than 75% of grand total marks prescribed will be declared to have passed the examination in First Class.

**c. Second Class**

A candidate having appeared in all the subjects in the same examination and passes that examination in the First Attempt and secures 50% of Marks or more but less than 65% of grand total marks prescribed will be declared to have passed the examination in Second Class.

**d. Pass Class**

A candidate passing a KAHER Examination in more than one Attempt shall be placed in pass class irrespective of the Percentage of marks secured by him/ her in the Examination.

(Please Note. fraction of Marks should not be rounded off for classes(a), (b) and (c)).

**1.2 Supplementary Examination**

Supplementary examination will be conducted within 90 days after the declaration of the results of the main examination. The failed student will have to appear in the subsequent year.

**PHASE III**  
**Part - I**

**Section - IV**  
**PHASE III PART I**

**Subjects**

- Ophthalmology
- Otorhinolaryngology (ENT) & HNS
- Community Medicine
- Forensic Medicine and Toxicology

# Curriculum for OPHTHALMOLOGY

## Course Description

**Goals:** The purpose of UG education is to create doctors who would provide high quality health care and advance the cause of science through research & training.

The purpose of this programme is to standardize Ophthalmology teaching at under-graduate level throughout the country so that it will benefit in achieving uniformity in undergraduate teaching. The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject- content specialists. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of "domains of learning" under the heading "competencies".

At the end of training in Ophthalmology a MBBS Graduate shall be able to recognize common eye ailments and treat them effectively in the community. He should be able to treat common eye ailments and refer the cases timely.

## Objectives:

### A) Knowledge

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

1. Describe the applied anatomy, physiology and biochemical attributes of the normal eye and adnexa.
2. Describe the pathophysiology, clinical features, and management of diseases of the eyelids, cornea, lens, retina and optic nerve.
3. Describe the pathophysiology, clinical features, and management of diseases of orbit and adnexa.
4. Demonstrate the ability to apply the knowledge in a clinical setting.
5. Define, classify and describe the types and methods of correcting refractive errors.
6. Describe the evaluation and enumerate the steps involved in the stabilization, initial management and indication for referral in a patient with ocular injury

7. Discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)
8. Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss

## **B) Skills**

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

1. Elicit a detailed clinical history and perform an ocular examination, in common ocular conditions, both outpatient and ward setting.
2. Apply the elicited history and examination to arrive at correct diagnosis and plan treatment.
3. Perform minor diagnostic and therapeutic procedures in an emergency situation prior to referral to higher centers.

## **C) Attitude and communication skills**

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

1. Communicate effectively with patients, their families and the public at large.
2. Communicate effectively with peers and teachers
3. Demonstrate the ability to work effectively with peers in a team.
4. Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers.
5. Appreciate the issues of equity and social accountability while undergoing all clinical encounters

## **Course content**

The course content includes competencies, specific learning objectives for each competency and the suggested Teaching-Learning methods and assessment methods both formative and summative. The competencies have been developed by an expert group nominated by NMC.

### Teaching-Learning methods and Time allotted

Professional Year	Teaching Hours Lectures	Tutorials/Seminar Integrated Teaching hours	SDL hours	Total hours	Clinical Posting
Ophthalmology III/I	30	60	10	<b>100</b>	Two postings of 4 weeks each. (Total 8 hrs) First posting in Professional Year II (15hours/week) and Second posting in Professional Year III/I (18hours/week)

### Theory

#### A. Cognitive domain

#### I. Basic Sciences

#### 1) Anatomy : ( AN41.1)

##### (CORE)

Basic Embryology of the Eye Structure of the eye ball.

Blood supply, Cranial nerves of ocular importance.

Extra-ocular muscles.

#### 2) Physiology: (PY 10.17, 10.18,10.19, 10.20)

##### (CORE)

Physiology of vision and color vision.

Pupil and light reflex, Pupillary pathways, visual pathways

## VISUAL EVOKED POTENTIALS

Tear film secretion–function and excretion

Aqueous humor dynamics.

Corneal Transparency Factors.

### **3) Pharmacology: PH1.58**

#### **(CORE)**

General Principles of ocular therapeutics – routes of administration

Ocular antibiotics, Antivirals - Anti-fungal drugs – corticosteroids and Immunosuppressive agents – Lubricating eye drops

Cycloplegics – mydriatics – miotics

Antiglaucoma drugs.

Recent advances in ocular therapeutics.

### **4) Pathology:**

#### **(NON CORE)**

Gross Pathology - Histopathology of Retinoblastoma, Malignant Melanoma, Squamous cell carcinoma, basal cell carcinoma etc.,

### **5) Elementary Optics:**

#### **(NON CORE)**

Optical system of Normal eye Optics & Refraction of eye

Reduced eye, Sturm's conoid, Estimation of Refraction.

## **III) Diseases of the Eye**

### **1) CONJUNCTIVA (OP 3.1 – OP 3.9)**

#### **(CORE)**

Applied Anatomy Acute infective conjunctivitis: Bacterial, Viral, Chlamydial conjunctivitis Allergic conjunctivitis: Simple, Phlyctenular, Vernal conjunctivitis Degenerative conditions: Pterygium, Pinguecula,

Concretions. Cysts and Tumors of Conjunctiva.

Mucocutaneous diseases affecting conjunctiva.

## **2) CORNEA (OP 4.1 – OP 4.10)**

### **(CORE)**

Applied Anatomy Corneal ulcer: Etiology, clinical features, complications and treatment of bacterial, viral and fungal corneal ulcers.

Conditions predisposing to Corneal Ulcer: Vitamin A deficiency and keratomalacia. Exposure keratitis, Neuroparalytic keratitis, Deep keratitis: Aetiology, clinical features and treatment.

Degenerations and dystrophies of cornea, Keratoconus

Corneal Blindness: Causes and treatment.

Basics of Eye donation, Eye Banking and Keratoplasty

## **3) SCLERA (OP 5.1 – OP 5.2)**

### **(CORE)**

Episcleritis and Scleritis: Clinical features and differential diagnosis, investigations and treatment. Systemic associations

Staphyloma . Scleromalacia perforans, Blue sclera.

## **4) LENS (OP 7.1 – OP 7.6)**

### **(CORE)**

Applied Anatomy Classification of cataract: Senile cataract: Aetiology, clinical features and evaluation. Differential diagnosis from open angle glaucoma.

Pre –operative evaluation, surgical management of cataract, and complications of cataract surgery.

Aphakic correction and Intra-ocular lens implantation.

Congenital and Developmental cataract: Awareness of Amblyopia, assessment and early reference for surgical intervention.

Acquired cataract: Complicated, Traumatic, Metabolic, Toxic and After Cataract, Ectopia lentis – subluxation, Dislocation. Systemic diseases associated with cataract.

**5) UVEAL TRACT (OP 6.1 – OP 6.5, 6.8)**

**(CORE)**

Applied Anatomy Aetiology and Classification of Uveitis.

Acute anterior uveitis – aetiology, clinical features, complications differential diagnosis and management.

Purulent uveitis: Endophthalmitis, Pan-Ophthalmitis. Chronic uveitis, Pars Planitis, Posterior uveitis.

Congenital anomalies – Coloboma of Iris and Choroid

**6) VITREOUS**

**(NON CORE)**

Applied Anatomy Vitreous detachment, Asteroid hyalosis, Synchysis Scintillans,

Vitreous hemorrhage – aetio-pathogenesis and management.

**7) GLAUCOMA (OP 6.5- 6.10) (CORE)**

Applied Anatomy Definition & Classification of Glaucoma Evaluation of Glaucoma – Tonometry, Optic disc assessment. visual field changes, Gonioscopy Angle closure glaucoma differential diagnosis and Management. Open angle glaucoma- Medical and surgical treatment Congenital glaucoma. Secondary Glaucomas: Lens induced glaucoma, Inflammatory glaucoma, Neovascular glaucoma, Traumatic Glaucoma, Intra – ocular tumours, Steroid induced glaucoma, Pseudo –exfoliation syndrome.

**8) RETINA (OP 8.1 – 8.4)**

**(CORE)**

## Applied Anatomy

Fundus changes: Diabetes mellitus, Hypertension, Toxaemia of pregnancy, Renal diseases, Haematological diseases, AIDS, Myopia. Diabetic Retinopathy – Risk factors, Classification, fundus features, assessment and treatment, Laser photo-coagulation, Pars Plana vitrectomy.

Retinal vascular diseases – CRAO, CRVO, BRAO, BRVO, Eale’s disease. Retinal detachment: Risk factors, clinical features, treatment

Retinal degeneration – Retinitis pigmentosa, Familial lipid degenerations. ARMD Retinal infections – Toxoplasma, Toxocara, CMV. Retinopathy of Prematurity

### **9) OPTIC NERVE (OP 8.5)**

#### **(CORE)**

Papilloedema: Aetiology and fundus picture, differential diagnosis- Papillitis and management Papillitis: Aetiology and fundus picture, Retrobulbar neuritis. Optic atrophy – Primary, Secondary, Vascular, Glaucomatous. Toxic amblyopia, Optic nerve coloboma

### **10) INTRA – OCULAR TUMOURS (PA 36.1)**

#### **(NON CORE )**

Retinoblastoma - Clinical features and treatment, differential diagnosis of Leucocoria Malignant melanoma – Clinical features and treatment.

**(AN 30.5)** Pituitary tumors and visual pathways.

### **11) SQUINT (OP 9.1 -9.2)**

#### **(CORE)**

Extra ocular muscles and movements.

Classification Differentiation of paralytic and non-paralytic squint

Concomittant squint: Types, aetiology, assessment and principles of management

Causes and Evaluation of Paralytic squint

**(OP1.5)** Awareness of Amblyopia and need for early reference

**(NON CORE)**

**(AN41.3)** Intra ocular muscles

## **12) ORBIT**

**CORE (OP 2.4 – OP 2.8)**

Proptosis: Classification, Causes, Investigations. Exophthalmos: Thyroid ophthalmopathy

Orbital inflammations: Preseptal cellulitis, Orbital cellulitis, Cavernous sinus thrombosis. Nonspecific orbital inflammations

Common tumors of the orbit

## **13) LACRIMAL SYSTEM**

**CORE (OP 2.3)**

Causes and evaluation of Epiphora

Aetiology, Clinical features, Complications and management of congenital and acquired acute and chronic Dacryocystitis. Tear film formation, functions, drainage of tears

Dry Eye – Diagnosis and management.

## **14) LIDS**

**CORE (OP 2.1 – OP 2.2)**

Inflammations – Blepharitis Hordeolum Externa/Interna, Chalazion.

Anomalies in the position – Trichiasis, Entropion, Ectropion, Ptosis Symblepharon, Ankyloblepharon, Lagophthalmos. Tumours of the lids.

## **15) REFRACTIVE ERRORS**

**CORE (OP 1.1 – OP 1.4) (9.3)**

Classification and management of Refractive Errors. Hypermetropia, Myopia, Astigmatism, Anisometropia, Anisokonia,

**OP 1.4** Refractive surgeries

**NON CORE:** Anomalies of Accommodation & Convergence. Progressive Lenses

**16) INJURIES**

**CORE (OP – 9.5)**

Perforating injuries : Mechanical effects: Retained Intraocular foreign body  
Immediate and late complications-Endophthalmitis/Sympathetic ophthalmitis.  
Immediate management and referral.

Contusion injuries: Mechanical effects, delayed complications and referral,  
Chemical burns : Immediate first-aid, assessment and referral.

Medico Legal Aspects of Injuries.

**17) OPHTHALMIC SURGERY**

**CORE (OP 7.3 -7.5)**

Cataract surgery: Phaco-Surgery, Small Incision Cataract Surgery, Intra Ocular Lenses

**NON CORE:**

Anti-glaucoma operations.

Enucleation, Evisceration, Exenteration, Dacryocystectomy – DCR

Keratoplasty

Amniotic Membrane grafts

**18) COMMUNITY OPHTHALMOLOGY**

**CORE (OP 9.4)**

Definition and types of blindness.

Causes of blindness: National Programme for Control of Blindness; Objectives and Activities

Objectives of NPCB and Trachoma control project.

Vision – 2020/ Right to Sight in India.

## **19) MISCELLANEOUS**

### **CORE (OP 9.5)**

Ocular emergencies – trauma, chemical burns, acute congestive glaucoma, endophthalmitis, sudden loss of vision.

### **NON CORE:**

Investigative Ophthalmology –Ophthalmic ultrasound, computerized visual field testing, ERG, VEP, CT Scan.

Recent advances – types and uses of lasers in Ophthalmology. Lasik, ANTI-VEG Factors, Vitrectomy

## **B. Affective Domain**

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion. 3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

## **C. Psychomotor domain:**

**At the end of the course, the student should acquire/observe the following clinical skills:**

### **i) Clinical Examination Methods**

1. Introduction: History taking: Case sheet writing.
2. Visual acuity testing: Use of Pin hole: Color vision test.
3. Estimation of Refraction.\*
4. Anterior segment Examination: Torch, Magnifying Loop\*, Slit-Lamp\*.

Assessment of depth of anterior chamber. Assessment of pupil reactions.

5. Posterior segment examination: Distant direct ophthalmoscopy, Direct ophthalmoscopy, Indirect Ophthalmoscopy, Fundus Biomicroscopy, Fundus Fluorescein angiography.\*
6. Tonometry: Digital tonometry, Schiottz and Applanation tonometry\*.
7. Visual field examination: Confrontation method, Automated Perimetry\*
8. Ophthalmic Ultrasound: Biometry.B-Scan.\*

## **ii) Procedures**

1. Cover test: Ocular motility test\*
2. Assessment of corneal sensation ( Wick test), Corneal surface (Placido's disc)\*  
Corneal ulcer (Fluorescein staining)\*
3. Eversion of upper eye lid, Epilation of eye lashes.\*
4. Digital tonometry, Use of Schiottz tonometer\*, Applanation Tonometry\*
5. Irrigation of conjunctival sac, Instillation of eye drops, Application of ophthalmic patch and bandage.\*
6. Lacrimal syringing test\*
7. Use of Lid retractors to examine infant's eye\*.
8. Removal of extraocular foreign body\*
9. Subconjunctival injection\*

\* These procedures are for observation only.

## **Practicals/ tutorials/ small group discussions/ integrated teaching: SGT (Small group teaching) classes**

AN41.1 Anatomy of Eye OP2.1

PY10.17 Physiology of Vision

OP4.3 Cornea: Corneal edema

OP5.1 Sclera: Episcleritis  
OP5.2 Sclera: Scleritis  
OP6.4 Uvea: Hyphemia and hypopyon  
OP9.3; IM17.1-Refractive: Headache  
OP2.5 Orbit: Cavernous sinus thrombosis  
PA36.1 Ocular Tumor: Retinoblastoma  
PY10.18 Visual Pathway Abnormalities  
OP6.3 Uvea: ocular manifestations in Systemic conditions  
PY10.19 Visual Evoked Potential  
OP9.4; CM 8.3 Community ophthalmology: NPCB And Vision 2020  
IM24.15 Visual loss and rehabilitation in elderly  
OP1.4 CORNEA: Refractive surgeries  
OP1.5 STRABISMUS: Strabismic amblyopia  
OP2.5, 2.8 ORBIT: Orbital tumors  
OP3.3 CONJUNCTIVA: Conjunctivitis  
OP3.6 CONJUNCTIVA: Pterygium  
OP3.7 CONJUNCTIVA: Symblepharon  
OP4.4 CORNEA: Dry eye  
OP4.5 CORNEA: Corneal blindness  
OP4.6 CORNEA: Keratoplasty  
OP4.7 CORNEA: Tarsorrhaphy  
OP6.2 UVEA: Acute and chronic iridocyclitis  
OP6.7 GLAUCOMA: Clinical features and treatment  
OP6.8 UVEA: Investigations in Uveitis

OP6.9 UVEA: Ocular therapy in Uveitis

OP 7.4 Cataract Surgeries

OP 8.3 Retina fundoscopy

**SDL classes**

OP2.3 Lacrimal apparatus: ROPLAS and Syringing (SDL 1)

OP1.3/ PY10.20 Color Vision (SDL 2)

OP7.4 Lens: Cataract surgeries (SDL 4)

OP6.7 Glaucoma: POAG and PACG (SDL 3)

OP9.5 Ocular Injuries (SDL 5)

**DOAP Classes**

OP1.3 Visual acuity assessment: Distance , near , colour, pinhole , menace and blink reflex

OP2.2 Clinical method of examination of conditions of lid and adnexa

OP2.3 Case of dacryocystitis

OP3.1 Case of Corneal ulcer and conjunctivitis: History taking in patient with "red eye"

OP3.2 Case of Acute anterior uveitis: Clinical method of examination of patient with " red eye "

OP3.8 Technique of ocular foreign body removal

OP3.9 Technique of instillation of eye drops

OP4.8 Technique of corneal foreign body removal

OP 4.10 Eye donation : counseling

OP 6.6 Case discussion of Glaucoma

OP 6.10 Case of Uveitis : Counselling regarding diagnosis , therapy and prognosis

OP7.3 Case of cataract : Technique of ocular examination in case of cataract

OP7.5 Case of cataract: participate in team for cataract surgery

OP7.6 Case of cataract: Consent and counsel for cataract surgery

OP9.1 Case of squint: extraocular movements

PY10.20 Case of Glaucoma: Visual field assessment

OP8.3 RETINA: Fundoscopy, distinguishing features between normal and abnormal retinal exam

OP 6.7 IOP on Dummy cornea

**LOG BOOK:**

<b>S. No.</b>	<b>Contents</b>	<b>Evaluation</b>
I.	Clinical Case Presentations	End Posting
II.	Competencies A. Requiring Certification B. Requiring Documentation	DOAP – Mini CEX
III.	Skill Learning Sessions A. Certifiable Procedural Skills B. Other Skills	DOPS
IV.	Affective Competencies Requiring Documentation	
V.	Clinic/ Field Visits	
VI.	Participation in Departmental Activities	
VII.	Self-Directed Learning (SDL) Sessions	
VIII.	Integrated Learning Sessions	

## CURRICULUM:

### I) THEORY.

Didactic lectures of one hour duration once a week.

Small group discussion (SGD) of two hours duration as an afternoon session

SI.No.	Topic	Lecture	SGD	SDL	Grand Total Hrs
Duration		1Hr	2Hrs	2 Hrs	
<b>I</b>	<b>Basic Sciences</b>				
1	Anatomy of the Eye	1	1		3
2	Physiology of the Eye	1	1+1	1	7
3	Ocular Pharmacology	1			1
<b>II</b>	<b>Diseases of the eye</b>				
1	Diseases of Eye-lids	1			1
2	Diseases of Orbit	<b>1+1 +1</b>	1+1		7
3	Diseases of Lacrimal apparatus	<b>1+1</b>		1	4
4	Diseases of Conjunctiva	<b>1+1 +1</b>	1+1+1		9
5	Diseases of Cornea	1+1 +1	1+1+1+1+ 1+1		15
6	Diseases of the Sclera		1+1		4
7	Diseases of Uvea	1+1	1+1+1+1+1		12
8	Intraocular tumors	1			1
9	Diseases of Lens	1+1 +1	1	1	7
10	Glaucoma	1+1	1	1	6
11	Diseases of Retina and vitreous	1+1 +1+ 1	1+1		8
12	Diseases of Optic Nerve	1			1
13	Ocular injuries	1	1	1	3
14	Refractive errors	1	1		3
15	Squint	<b>1+1 +1</b>	1		5

Sl.No.	Topics	Lectures	Tutorials	Total	
		Duration: 1Hr	Duration: 2 Hrs	Hours	
<b>III</b>	<b>Miscellaneous</b>				
1	Causes of Blindness/Prevention		1		
2	Neuro ophthalmology	1+1	1		
3	Community Ophthalmology		1		
4	Recent advances /Lasers in ophthalmology	1			
5	AETCOM	***			
		<b>35</b>	<b>31x2=62</b>	<b>10</b>	<b>107</b>

## II) PRACTICAL CLINICAL TRAINING.

Sl. No	Title	Weeks	Sessions Duration: 3 Hrs	Total In Hours
I	Clinical Posting I	4	24	72
II	Clinical Posting II	4	24	72
	<b>TOTAL</b>	<b>8</b>	<b>48</b>	<b>144</b>

### Internal Assessment

Progress of the medical learner shall be documented through structured periodic assessment that includes formative and summative assessments. Logs of skill-based training shall be also maintained.

There shall be no less than three internal assessment examinations in Ophthalmology. An end of posting clinical assessment shall be conducted for each of the Ophthalmology clinical posting.

Day to day records and logbook (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.

The results of internal assessment should be displayed on the notice board within 1-2 weeks of the test. Remedial measures should be offered to students who are either not able to score qualifying marks or have missed on some assessments due to any reason. Learners must have completed the required certifiable competencies for that phase of training and Ophthalmology logbook entry completed to be eligible for appearing at the final university examination.

AETCOM assessment will include: (a) Written tests comprising of short notes and creative writing experiences, (b) OSCE based clinical scenarios / viva voce.

### **Eligibility to appear for University Examination**

Eligibility to appear for university examinations is dependent on fulfilling criteria in two main areas – attendance and internal assessment marks

#### **Attendance:**

Attendance requirements are 75% in theory and 80% in Practical/clinical postings for eligibility to appear for the examinations in Ophthalmology.

75% attendance in AETCOM Module is required for eligibility to appear for final examination in Professional Year III/ I.

#### **University examinations:**

Third Professional Part I shall be held at end of third Professional part 1 of training in the subjects of Ophthalmology, Otorhinolaryngology, Community Medicine and Forensic Medicine and Toxicology

University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact. Assessment shall be carried out on an objective basis to the extent possible.

#### **Marks allotted:**

The theory paper should include different types such as structured essays, short essays, Short Answers Questions (SAQ) and MCQs ( Multiple Choice Questions). Marks for each part should be indicated separately.

A minimum of 80% of the marks should be from the core component of the curriculum. A maximum of 20% can be from the non core component. All main essay questions to be from the core component of the curriculum.

One main essay question to be of the modified variety containing a clinical — case scenario. At least 30% of questions should be clinical case scenario based. Questions to be constructed to test higher cognitive levels.

Clinical examinations will be conducted in the hospital wards. Clinical cases kept in the examination must be common conditions that the learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders as examination cases is to be discouraged.

Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.

Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values.

Candidate's skill in interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.

At least one question in each paper of the clinical specialties in the University examination should test knowledge competencies acquired during the professional development programme. Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and viva voce.

There shall be one main examination in an academic year and a supplementary to be held not later than 90 days after the declaration of the results of the main examination.

**Criteria for passing in this subject:**

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

## DEPARTMENT OF OPHTHALMOLOGY

### Scheme of Examination: MBBS III/I Phase

#### Internal and Formative Assessment:

#### THEORY & PRACTICAL

Internal Assessment (IA)	Theory Max. marks	Marks Obtained	Practical Max. Marks	Marks Obtained
<b>IA - I</b>	100		100	
IA - II	100		100	
Preliminary exams	100		100	
<b>Formative Assessment</b>				
<b>Part completion test</b>	Integrated SGT SDL	80	--	
			--	
			--	
Certifiable skills		--	40	
Non certifiable skills		--	30	
AETCOM Skills		10	10	
Co-Curricular and other academic activities		---	05	
Practical Record Book		---	05	
Logbook		10	10	
Total marks		<b>400</b>	<b>400</b>	
<b>Total marks reduced to 25%</b>		100	100	

## University Examination

### i) Written Paper :-

Questions	Type of Questions	Number	Allotted Marks	Total
Q1	MCQs	20	1	20
Q2	Long essay questions	2	10	20
Q3	Short essay Questions	9	5	45
Q4	Short answer types	5	3	15
<b>TOTAL</b>				<b>100</b>

### Practical Examination:

Type of Evaluation	Allotted Marks
Clinical Case 1	40
Clinical Case 2	40
<b>CLINICALS TOTAL</b>	<b>80</b>
<b>Viva -Voce</b>	<b>20</b>

## TOTAL MARKS IN OPHTHALMOLOGY

Theory			Practical / Clinical			Grand Total
Subject	Theory Paper	Total	Practical Examination	VIVA Assessment	Total	
Ophthalmology	100	100	80	20	100	200

### **Recommended Books (Latest editions)**

1. Stephen JH Miller, Parson's Diseases of the Eye, Butterworth Heinemann 20<sup>th</sup> Ed. 2007
2. Khurana A K, Comprehensive Ophthalmology, New Age International (P) Ltd., New Delhi. 4<sup>th</sup> Ed. 2007
3. Rao A.A..Text Book of Diseases of the Eye: All India Publishers & Distributors Regd. Chennai-New Delhi., 4<sup>th</sup> Ed. 2004
4. HV Nema Nitin Nema Text Book of Ophthalmology, 4<sup>th</sup> Ed. 2002 J.P. Brothers

# **CURRICULUM FOR OTORHINOLARYNGOLOGY AND HEAD AND NECK SURGERY (ORL & HNS)**

## **Course Description**

### **Preamble:**

The purpose of UG education is to create doctors who would provide high quality health care and advance the cause of science through research & training. The purpose of this program is to standardize **Otorhinolaryngology and Head and Neck Surgery** teaching at under-graduate level throughout the country so that it will benefit in achieving uniformity in undergraduate teaching. The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject- content specialists. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of "domains of learning" under the heading "competencies".

### **a) Goals:**

At the end of training in **Otorhinolaryngology and Head and Neck Surgery** a MBBS graduate shall be able to recognize common ear, nose and throat ailments and treat them effectively in the community. He should be able to treat common ear, nose and throat ailments and refer the cases timely.

### **Objectives:**

MBBS Student at the end of training in Otorhinolaryngology and HNS, the candidate should be able to.

#### **A. Knowledge:**

- a. Describe surgical anatomy and physiology of Ear, Nose, Throat and Head & Neck
- b. Describe basic Patho-physiology of common ear, nose, throat diseases and emergencies.
- c. List common investigative procedures and their interpretation

- d. Describe common infective conditions of ENT, Head & neck and treatment protocols
- e. Identify congenital deafness as early as possible
- f. Identify stridor, sleep related disorders for early referral

**B. Skills:**

- a. Elicit a detailed clinical history and perform an ENT examination in both outpatient and ward settings
- b. Interpret the elicited history and examination to arrive at correct diagnosis and plan treatment.
- c. Perform minor diagnostic and therapeutic procedures in an emergency situation prior to referral to higher centers.

**C. Attitude and Communication Skills:**

- 1. Communicate effectively with patients, their families and the public at large.
- 2. Communicate effectively with peers and teachers demonstrate the ability to work effectively with peers in a team.
- 3. Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision making.
- 4. Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers.
- 5. Appreciate the issues of equity and social accountability while undergoing all clinical encounters

**b) Course contents for Oto-Rhino-Laryngology & HNS**

<b>Professional Year</b>	<b>Teaching Hours Lectures</b>	<b>Tutorials/ Seminar Integrated Teaching hours</b>	<b>SDL hours</b>	<b>Total hours</b>	<b>Clinical Posting</b>
III/I	25 Hours	40 Hours	5 Hours	<b>70</b>	Two postings of 4 weeks each. First posting in Professional Year II (15hours/week) and Second posting in Professional Year III/I (18hours/week)

## **THEORY**

### **A. COGNITIVE DOMAIN**

#### **I. Anatomy, Physiology and Pathology:**

- **CORE**

1. Anatomy and Physiology of Ear **EN 1.1 AN;40.1. 40.2; PY10.15**
2. Anatomy and Physiology of Auditory tube **EN 1.1**
3. Anatomy and Physiology of Nose and Paranasal Sinuses **EN 1.1; AN 37.1-2,**
4. Anatomy and Physiology of Oral Cavity and salivary glands **EN 1.1;**
5. Anatomy and Physiology of Pharynx **EN 1.1; AN 36.1,36.2**
6. Anatomy and Physiology of Larynx **EN 1.1; AN 38.1;**
7. Anatomy of Head **EN 1.1**
8. Anatomy of Neck **EN 1.1**
9. Pathophysiology of common ENT diseases **EN 1.2**

- **NON CORE**

1. Features of inner ear **AN 40.3**
2. Anatomical basis of otitis externa, otitis media and myringotomy  
**AN 40.4-40.55**
3. Anatomical basis of sinusitis and maxillary sinus tumors **AN 37.3**
4. Anatomical basis of laryngitis, recurrent laryngeal nerve palsy, hypoglossal nerve palsy **AN 38.2 -38.3; AN 39.2**
5. Boundaries and clinical significance of pyriform fossa **AN 36.3**
6. Anatomical basis of tonsillitis, tonsillectomy, adenoids and peritonsillar abscess **AN 36.4**
7. Clinical significance of Killian's dehiscence **AN 36.5**

## **II. Clinical Skills and Diagnostic and Therapeutic Procedures in ENT:**

- **CORE**

1. History and Examination- General Set-Up **EN 2.1-2.2-**
2. Otologic Symptoms and Examination **EN 2.3; EN 4.1; EN 4.4; EN 4.21; EN 4.6; PE 28.10**
3. Hearing Evaluation **EN 2.4; EN 2.8; EN 4.16-4.17; PY 10.16**
4. Hearing Loss- Principles and Management **EN 4.12; PY 10.16**
5. Nasal Symptoms and Examination **EN 2.5; EN 4.22; PE 28.12**
6. Oral Symptoms and Examination **EN 2.11**
7. Pharyngeal Symptoms and Examination **EN 2.6; EN 4.38; PE 28.11**
8. Smell and Taste **PY 10.13; PY 10.20**
9. Topical Medication in Otorhinolaryngology **EN 2.14**
10. Laryngeal Symptoms and Examination **EN 4.42**
11. Neck Symptoms and Examination **EN 2.7**
12. Diagnostic Imaging **EN 2.9; PE 28.17**
13. Microbiological and Histological Investigations **EN 2.9**

- **NON CORE**

1. Steps of otoscopic examination in a simulated environment. **EN 3.1**
2. Steps of diagnostic nasal endoscopy **EN 3.2**
3. Steps of rigid/ flexible laryngoscopy **EN 3.3**
4. Human Immunodeficiency Virus Infection **EN 4.53**

## **III. Community Medicine:**

- **CORE:**

1. Health Hazards of Air, Water and Noise, Radiation and Pollution **CM 3.1**

2. National Programs for the Prevention of Deafness, Cancer, Noise and Environmental Pollution **EN 2.15**

#### **IV. Attitude, Ethics and Communication (AETCOM):**

- **CORE:**

1. Informed Consent **EN 2.12**
2. Counselling **DE 4.4**

#### **V. Emergencies in Otorhinolaryngology (ENT):**

- **CORE:**

1. Foreign bodies in Ear, Nose and Throat **EN 2.13; EN 4.49; PE 28.8**
2. Epistaxis **EN 2.13; EN 4.30**
3. Stridor and Airway Emergencies **EN 2.13; EN 4.47-4.48; PE 28.7; PE 28.9**
4. Tracheostomy **EN 2.13; EN 4.50-51**

- **NON CORE:**

1. Steps of foreign body removal and emergency procedures in ear, nose and throat. **EN 3.4; EN 3.6;**
2. Kerosene Ingestion **PE 14.2**

#### **VI. Management of Diseases of Ear:**

- **CORE:**

1. Diseases of External Ear **EN 4.2; EN 4.9;**
2. Acute Otitis Media and Otitis Media with Effusion **EN 4.3; EN 4.5; PE 28.4**
3. Chronic Suppurative Otitis Media and Cholesteatoma **EN 4.7-4.8**
4. Sensorineural Hearing Loss **EN 4.14-4.15; IM 24.17**
5. Otosclerosis **EN 4.13**

6. Facial Nerve and its Disorders **EN 4.18;**

7. Evaluation of Dizzy Patient **EN 4.19**

- **NON CORE:**

1. Vestibular Disorders including Meniere's Disease **EN 4.20**

### **VII. Management of Diseases of Nose and Paranasal Sinuses:**

- **CORE:**

1. Acute and Chronic Rhinosinusitis **EN 4.29; EN 4.33**

2. Nasal Polyps **EN 4.25**

3. Allergic Rhinitis and Atopic Dermatitis **EN 4.27; PE 31.1; PE 31.3**

4. Vasomotor Rhinitis **EN 4.28**

5. Disorders of Nasal Septum **EN 4.23**

6. Tumors of Nose and Paranasal Sinuses **EN 4.34**

- **NON CORE:**

1. Trauma to Face and Neck **EN 4.31**

### **VIII. Management of Diseases of Oral Cavity and Salivary Glands:**

- **CORE:**

1. Oral Mucosal Lesions **EN 2.11; DE 4.2-4.3**

2. Neoplasms of Oral Cavity **EN 2.11; DE 4.2, SU 20.1**

- **NON CORE:**

1. Precancerous lesions of oral cavity **DE 4.1; DE 4.3**

2. Disorders of Salivary Glands **EN 4.36**

## **IX. Management of Diseases Pharynx and Esophagus:**

- **CORE:**

1. Pharyngitis and Adenotonsillar Disease **EN 4.26; EN 4.39; PE 28.1-28.3**
2. Abscesses in relation to Pharynx (Deep Neck Infections) **EN 4.37; EN 4.41**
3. Tumors of Nasopharynx **EN 4.32; EN 4.41**
4. Tumors of Oropharynx **SU 20.1**
5. Malignancy of Hypopharynx **EN 4.46**

- **NON CORE:**

1. Tumors of Nasopharynx **EN 4.35**
2. Disorders of Esophagus **EN 4.52**

## **X. Management of Diseases of Larynx:**

- **CORE:**

1. Acute and Chronic Laryngitis **EN 4.43; EN 4.43; PE 28.6-28.6**
2. Benign Tumors of Vocal Cord **EN 4.44; EN 4.44**
3. Malignancy of Larynx **EN 2.10; EN 4.46**

- **NON CORE:**

1. Neurological Disorders of Larynx **EN 4.45**

## **XI. Operative Instruments and Procedures:**

- **CORE:**

1. Surgical Instruments
2. Myringotomy and Myringoplasty **EN 3.5; EN 4.10**
3. Mastoidectomy **EN 3.5; EN 4.11**

4. Operation of Nose and Paranasal Sinuses **EN 3.5; EN 4.24**
5. Adenotonsillectomy **EN 3.5; EN 4.40**

**B. AFFECTIVE DOMAIN**

- Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the possible diagnosis or opinion.
- Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

**C. PSYCHOMOTOR DOMAIN:**

At the end of the course, the student should acquire following clinical skills

**PRACTICAL:**

**i) Clinical Examination Methods:**

1. Introduction: History taking: Case sheet writing.
2. Use of head mirror / headlight in ENT examination.
3. Ear examination with Otoscopy.
4. Perform and interpret tuning fork tests.
5. Examination of nose and para nasal sinuses with anterior and posterior rhinoscopy mirror.
6. Examination of oral cavity and oropharynx with tongue depressor.
7. Examination of neck.
8. To do and interpret Pure tone audiometry and Impedance audiometry.

**ii) Procedures to be observed**

1. Myringotomy and grommet insertion.
2. Tympanoplasty
3. Simple mastoidectomy
4. Anterior nasal packing
5. Posterior nasal packing
6. Diagnostic nasal endoscopy
7. Septoplasty
8. Functional endoscopic sinus surgery
9. Tonsillectomy
10. Adenoidectomy
11. Tracheostomy

**LOG BOOK: Suggested Template of logbook is attached as annexure. The minimum elements that needs to be included are mentioned in the template provided for log book.**

## I. THEORY

Didactic lectures of one hour duration once a week.

Small group discussion (SGD) of two hours duration as an afternoon session

Sl.No.	Topics	Lectures Duration: 1Hr	SGD Duration:2 Hrs	SDL Duration: 1Hrs
<b>I</b>	<b>Basic Sciences</b>			
1	Anatomy and Physiology of the Ear		1+1	
2	Anatomy and Physiology of the Nose		1+1	
3	Anatomy and Physiology of the Throat & neck		1+1	
<b>II</b>	<b>Diseases of the Ear</b>			
4	Diseases of external ear/otalgia (EN 4.1, 4.2).	1		
5	Otosclerosis/ vestibular disorder including Meniere's disease (EN 4.13, 4.20).	1	1+1	
6.	Deafness (EN 4.12,4.14,4.15).	1	1+1+1+1	
7.	Tinnitus/evaluation of dizzy patient (EN 4.19,4.21).	1	1+1	
8	AOM/SOM/Chronic otitis media – tubotympanic and atticoantral (EN 4.5, 4.6, 4.7, 4.8).	1+1	1+1	
9.	Facial nerve and its disorders (EN 4.18).	<b>1</b>		1
<b>III</b>	<b>Diseases of the Nose</b>			
10	Disorders of nasal septum (EN 4.23).	<b>1</b>	1+1	
11	Nasal polyp (EN 4.25).	<b>1</b>	1+1	
12.	Allergic and vasomotor rhinitis/ atopic dermatitis (EN 4.27, 4.28, PE 31.1, 31.3).	1	1	

13.	Acute and chronic Rhinosinusitis (EN 4.29, 4.33).	1	1	
14.	Epistaxis/trauma to face and neck (EN 4.30, 4.31).	1	1	
15.	Tumors of nose & PNS, nasopharynx (EN 4.32, 4.34, 4.35).	1	1+1	
<b>IV Diseases of the Throat &amp; Neck</b>				
16.	Disease of salivary glands (EN 4.36).	1		1
17.	Deep neck space infections (EN 4.37, 4.41).	1	1	1
18.	Pharyngitis and Adenotonsillar disease (EN 4.26, 4.39, PE 28.1, 28.2, 28.3)	1	1+1	
19.	Neoplasms of Oral cavity and Oropharynx (DE 4.1, 4.2, 4.3 SU 20.1).	1		
20.	Acute and chronic laryngitis (EN 4.43).	1	1	
21.	Benign lesions of vocal cord (EN 4.44).	1	1	
22.	Neurological disorder of larynx (EN 4.45).	<b>1</b>	1	
23.	Malignancy of larynx and hypopharynx (EN 4.46).	<b>1</b>	1	
24.	Stridor and airway emergencies (EN 4.47, 4.48).	<b>1</b>	1+1	
25.	Foreign bodies in ear, nose and throat (EN 4.49).	<b>1</b>	1+1	
26.	Dysphagia/disorders of oesophagus (EN 4.38, 4.52)	<b>1</b>	1	
<b>V Miscellaneous</b>				
1	Health hazards of pollution/ national programme in ENT / HIV in ENT (EN 4.53, CM 3.1, EN 2.15).	<b>1</b>		
2	Radiology/ Microbiology/ Histological tests relevant to ENT disorders (EN 2.9).		1+1	
3	Surgical procedure in ENT (EN 3.5).		1	

## II) PRACTICAL CLINICAL TRAINING.

Sl. No	Title	Weeks	Sessions Duration: 3 Hrs/Day	Total (In Hours)
I	Clinical Posting I	4	15 Hrs/ Week	60
II	Clinical Posting II	4	18 Hrs/ Week	72
	<b>TOTAL</b>	<b>8</b>	<b>33</b>	<b>132</b>

### SCHEME OF EXAMINATION:

#### ASSESSMENT AND EXAMINATION

##### 1) Formative:

- **Theory** - 100 marks (80 Marks paper + 20 marks MCQ).
  - o There shall be three theory examinations.
  - o First Internal Theory, Second Internal Theory and Preliminary examination for 100 marks each.
  - o Formative Assessment for 100 marks.
  - o Total marks of 400 in theory will be reduced to 100.
- **Practical's** – 100 marks
  - o At the End of First Postings – Skill Assessment – 100 marks.
  - o At the End of Second Postings –OSCE - 100 marks.
  - o Prelims – Practicals – 100 marks
  - o Formative Assessment for 100 marks.
  - o Total marks of 400 marks in practical's will be reduced to 100.

#### Eligibility to appear for University Examination

Eligibility to appear for university examinations is dependent on fulfilling criteria in two main areas – attendance and internal assessment marks

**Attendance:**

Attendance requirements are 75% in theory and 80% in Practical/clinical postings for eligibility to appear for the examinations in ENT.

75% attendance in AETCOM Module is required for eligibility to appear for final examination in Professional Year III/ I.

**Internal Assessment:**

Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in this subject in order to be eligible for appearing at the final University examination of this subject.

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

**University Examination:****Marks allotted:**

- The theory paper should include different types such as structured essays, short essays, Short Answers Questions (SAQ) and MCQs (Multiple Choice Questions).
- Marks for each part should be indicated separately.
- A minimum of 80% of the marks should be from the must know component of the curriculum.
- A maximum of 20% can be from the desirable to know component.
- All main essay questions to be from the must know component of the curriculum.
- One main essay question to be of the modified variety containing a clinical case scenario. At least 30% of questions should be clinical case scenario based. Questions to be constructed to test higher cognitive levels.
- Clinical examinations will be conducted in the hospital wards. Clinical cases kept in the examination must be common conditions that the

learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders as examination cases is to be discouraged.

- Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.
- Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values.
- Candidate's skill in interpretation of Audiometry, X-rays and Instruments is to be assessed.
- At least one question in each paper of the clinical specialties in the University examination should test knowledge competencies acquired during the professional development programme.
- Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and viva voce.
- There shall be one main examination in an academic year and a supplementary to be held not later than 90 days after the declaration of the results of the main examination.

**Criteria for passing in this subject:**

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

## SCHEME OF EXAMINATION

Internal and Formative Assessment:

### THEORY & PRACTICAL

Internal Assessment (IA)		Theory Max. marks	Marks Obtained	Practical Max. Marks	Marks Obtained
IA -I		100		100	
IA -II		100		100	
Preliminary exams		100		100	
<b>Formative Assessment</b>					
Part completion test	Integrated	80		--	
	SGT			--	
	SDL			--	
Certifiable skills		--		40	
Other than certifiable skills		--		30	
AETCOM Skills		10		10	
Co-Curricular and other academic activities		---		05	
Practical record		---		05	
Logbook		10		10	
<b>Total marks</b>		400		400	
<b>Total marks reduced to 25%</b>		100		100	

## 2) Summative Assessment

### University Examination

i) Written Paper :-

Questions	Type of Questions	Number	Allotted Marks (Per Question)	Total
Q1	MCQs	20	1	20
Q2	Long essay questions	2	10	20
Q3	Short essay Questions	9	5	45
Q4	Short answer types	5	3	15
<b>TOTAL</b>				<b>100</b>

### Practical Examination:

Type of Evaluation	Allotted Marks
Clinical Case 1	40
Clinical Case 2	40
<b>Viva -Voce</b>	<b>20</b>
<b>TOTAL</b>	<b>100</b>

### TOTAL MARKS IN OTORHINOLARYNGOLOGY and HNS

	Theory	Practical	Grand Total
<b>Subject</b>	Theory Paper	Practical & Viva Examination	
Otorhinolaryngology & HNS	100	100	200

### **Recommended Books (Latest editions)**

1. Mohan Bansal Diseases of Ear Nose & Throat
2. Dhingra P.L. Diseases of Ear Nose & Throat
3. P Hazarika, DR Nayak, R Balakrishna, Textbook of Ear, Nose Throat and Head - Neck Surgery Clinical and Practical
4. Dr. Jagadish Sunkum, Manual Of ENT, Head & Neck Surgery

### **References (Latest editions)**

1. Scott-Brown's Otorhinolaryngology and Head and Neck Surgery
2. Cummings Otolaryngology: Head and Neck Surgery
3. Ballenger's Otorhinolaryngology Head and Neck surgery
4. Dr. Jagadish Sunkum, Manual Of ENT, Head & Neck Surgery

### **To Be Noted:**

1. The number of hours mentioned above are rough guidelines that can be modified to suit the specific requirements of a medical college.
2. It is recommended that didactic teaching be restricted to less than one third of the total time allotted for that discipline.
3. Greater emphasis is to be laid on hands-on training, symposia, seminars, small group discussions, problem-oriented and problem-based discussions and self- directed learning.
4. Students must be encouraged to take active part in and shared responsibility for their Learning.

# **CURRICULUM FOR COMMUNITY MEDICINE**

The overall aim of teaching by the Department of Community Medicine is directed towards preparing medical student to function as a Community and Primary Care Physician / to create an 'Indian Medical Graduate'.

## **A) GOALS**

- 1) To produce doctors who are well aware of the physical, social, psychological, economic and environmental aspect of health and disease.
- 2) To enable the student to apply the clinical skills to recognize and manage common health problems including their physical, emotional and social aspects at the individual, family and community levels and deal with public health emergencies.
- 3) To make the student realize the role of doctor as a team leader.

## **B) OBJECTIVES**

To achieve this, he/she will be able to:

- a) Organize elementary epidemiological studies to assess the health problems in the area.
- b) Prioritize the most important problems and help formulate a plan of action to manage them under National Health Programme guidelines including population control and family welfare program. (He / She should be able to assess and allocate resources, implement and evaluate the programmes).
- c) Demonstrate knowledge of principles of organizing prevention and control of communicable and non-communicable diseases.
- d) Organize health care service for special groups like mother, infants, under five children and school children, handicapped, adolescents and geriatrics, rural, tribal and urban slum dwellers.
- e) Organize health care in case of calamities.
- f) Inculcate values like compassion, empathy, honesty, sincerity and integrity to ensure high quality ethical professional practice.

- g) Work as an effective leader of the health team within the primary health care set-up.
- h) Coordinate with and supervise other members of the health team and maintain liaison with various agencies. (Government, non-government and voluntary organizations)
- i) Plan and implement health education programmes.
- j) Perform administrative functions of health centres.
- k) Promote community participation especially in areas of disease control, health education and implementation of national programmes.
- l) Aware of national priorities and the goal to be achieved to implement primary health care including health for all.
- m) Understand different types of Hospital/ Bio-medical waste, their potential risks and their management.

**C) COURSE CONTENTS:**

<b>Professional Year</b>	<b>Teaching Hours Lectures</b>	<b>Tutorials/Seminar Integrated Teaching hours</b>	<b>SDL hours</b>	<b>Total hours</b>
I	20	27	05	<b>52</b>
II	20	30	10	<b>60</b>
III	40	60	05	<b>105</b>

**I PROFESSIONAL YEAR**

**Competencies the undergraduates must demonstrate:**

1. Understand the concept of health and disease
2. Understanding of demography, population dynamics and disease burden in national and global context
3. Comprehension of principles of health economics and hospital management
4. Understanding of interventions to promote health and prevent diseases as envisioned in national and state health programmes

**1. Introduction to Community Medicine / Concepts in Health & Disease (CM 1.1. – CM 1.10) 10 hrs**

**Core**

- a) Evolution of Public Health
- b) Concepts of health & disease
- c) Health indices
- d) Health profile of India
- e) Medical Ethics

**2. Social Medicine / Medical Sociology (CM 2.1-2.5) - Core 18 hrs**

- a) Introduction to Medical Sociology
- b) Meaning with definition and scope of medical sociology
- c) Basic concepts of sociology: Society, Community, Association, Institution etc.
- d) The study of family – Types and functions
- e) Rural community- Characteristics & health problems
- f) Urban Community- Characteristics & health problems
- g) Social factors in health and disease
- h) Cultural factors in health and disease
- i) Medico- social worker
- j) Leadership in health
- k) Social Security

**3. Basic Bio-statistics & its application (CM 6.1-6.4) -Core**

**16 hrs**

- a) Introduction to basic statistics

- b) Data - Types, Collection and Presentation
- c) Simple statistical methods for the analysis of data
- d) Frequency distribution
- e) Measures of central tendency
- f) Measures of variability

**4. Demography & Vital statistics, Family Planning (CM 9.1-9.7)-Core  
6 hrs**

- a) Definition of demography and demographic cycle
- b) Concept of demographic gap and population explosion
- c) Definition, calculation and interpretation of demographic indices - crude birth rate, crude death rate, fertility rates etc.

**5. Field visits to field practice area. 10 hrs**

**Clinico-social evaluation of the family**

- a) Study of family composition and socio-economic status, attitude towards health, disease and health services.
- b) Study of environmental factors influencing health status of the family – housing, water and sanitation
- c) Study of morbidity, vital events and assessment of barriers to good health

**TOTAL = 50 hrs LECTURE + 10 hrs FIELD VISITS = 60 hrs**

**II PROFESSIONAL YEAR**

**1. Nutrition and Health ( CM 5.1- 5.8 ) 6 hrs  
Core**

- a) Introduction to Common Nutritional Disorders
- b) Prevention and Control of
  - a. Iron deficiency

- b. Iodine deficiency
- c. Vitamin A deficiency
- d. Fluorosis
- c) Protein Energy Malnutrition – Prevention & Control
- d) National Nutrition Policy & National programs related to nutrition
- e) Assessment of Nutritional status of the community
- f) Nutrition Education & Rehabilitation

**2. Environment and Health ( CM 3.1- 3.8 )**

**8 hrs**

**Core**

- a) Concept of safe and wholesome water
- b) Sources of water
- c) Water standards for assessing quality of water (WHO guidelines)
- d) Water pollution
- e) Solid waste- Sources, collection and disposal
- f) Liquid waste (sewage and sullage) - Disposal
- g) Housing standards and effect of poor housing condition.
- h) Air pollution
- i) Noise pollution
- j) Radiation hazards
- k) Effects of heat, cold and atmospheric pressure on health
- l) Global warming and health
- m) Effect of Industrialization and urbanization on health
- n) Hospital waste management

**3. Communicable diseases ( CM 8.1- 8.7 ) 18 hrs**

**Core**

- a) Respiratory infections : ARI, TB, Measles, Diphtheria and whooping cough, SARS, Avian Influenza (Bird and Swine Flu)
- b) Gastro- intestinal : Poliomyelitis, viral hepatitis, diarrhea, Cholera, helminths, Food poisoning, Enteric fever
- c) Vector borne diseases : Malaria, Filaria, Dengue and Chikungunya
- d) Surface infections : STDs, HIV, Tetanus, Leprosy
- e) Zoonoses : Rabies, JE, Plague, KFD

**4. Non- Communicable diseases. ( CM 8.1- 8.7 ) 10 hrs**

**Core**

- a) Coronary Heart Disease
- b) Hypertension and stroke
- c) Diabetes mellitus and obesity
- d) Rheumatic heart disease
- e) Cancers
- f) Accidents
- g) Blindness

**THEORY = LECTURES + SELF DIRECTED LEARNING (SDL) = 24 hrs + 18 hrs = 42 hrs**

**PRACTICALS / FIELD VISITS**

**II PROFESSIONAL YEAR**

**1. Nutrition (CM 5.1- 5.8) Core 18 hrs**

- a) Classification of food and Sources of nutrients
- b) Nutritional significance of food



## **II PROFESSIONAL YEAR – Postings/ Field Visits**

### **1. Field visits (Rural / Urban field practice areas of the Medical College). Core 60 hrs**

- a) Primary Health Centre
- b) Sub-Centre
- c) Urban Health Centre
- d) Milk Dairy
- e) Anganwadi
- f) Sewage Treatment Plant
- g) Purification of water on large scale - Water purification plant
- h) Bio-Medical Waste Management Facility - Incinerator
- i) Family Visit (Follow up)
- j) Underfives' clinic at the hospital
- k) Visit to village to study
  - a. Housing condition, water supply and waste disposal
  - b. Socio-economic status and nutritional status

**PRACTICAL = NUTRITION + ENTOMOLOGY + STATISTICS + FIELD VISITS = 18 hrs + 14 hrs + 18 hrs + 60 hrs = 110 hrs**

## **III PROFESSIONAL YEAR**

### **Competencies the undergraduates must demonstrate:**

- 1. Understanding of physical, social, psychological, economic and environmental determinants of health and diseases.
- 2. Ability to recognize and manage health problems including physical, emotional and social aspects at individual family and community level in the context of national health programmes

3. Ability to implement and monitor national health programmes in the primary care setting
4. Knowledge of maternal and child wellness as they apply to national health care priorities and programmes.
5. Ability to recognize, investigate, report, plan and manage community health problems including malnutrition and emergencies.

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

**1. Basic Principles of Epidemiology - II (CM 7.1-7.9) Core 7 hrs**

- a) Uses of basic epidemiological tools
- b) Principle sources of epidemiological data.
- c) Definition, calculation and interpretation of measures of frequency of disease and mortality
- d) General principles of epidemiology
- e) Epidemiological studies: Descriptive, Case control, Cohort & RCT
- f) Investigation of an epidemic / pandemic management
- g) Screening for diseases.

**2. RMNCH +A and Family Welfare (CM10.1-10.9) Core 13 hrs**

- a) Family Planning/ Welfare
- b) Maternal & Child Health (MCH) – Antenatal care, Intranatal care, Postnatal care and Neonatal care.
- c) Care of preterm and premature baby – Kangaroo mother care
- d) Care of the pre-school child
- e) Indicators of RMNCH+A Care

- f) Reproductive & Child Health Programme, NRHM (National Rural Health Mission)
  - g) ICDS
  - h) MTP Act and PCPNDT Act (Pre-conception & Prenatal diagnostic technique)
  - i) School health services: objectives, services and activities.
  - j) Care of Handicapped children
  - k) NUHM (National Urban Health Mission)
  - l) IMNCI (Integrated Management of Neonatal and Childhood Illness)
- 3. Occupational health & social security (CM 11.1-11.5) 5 hrs**  
**Core**
- a) Introduction to Occupational Health & Ergonomics
  - b) Physical hazards
  - c) Chemical hazards - pneumoconiosis
  - d) Biological hazards
  - e) Employees State Insurance Act & Legislations related to occupation.
  - f) General preventive measures against occupational diseases including industrial accident prevention.
- 4. Urban Health: Core 4 hrs**  
Common health problems of urban slum dwellers,  
Organization of services for slum dwellers in urban areas etc.
- 5. National Health Programmes and Health Policies -Core ( CM 8.3 ) 16 hrs**
- 6. Health Information System (HIS) Core (CM 8.7) 5 hrs**
- 7. Health Education and Communication -Core (CM 4.1-4.3) 5 hrs**
- 8. Mental health- Core (CM 15.1-15.3) 5 hrs**

- |  |               |
|--|---------------|
| <b>9. Health planning and management -Core (CM16.1-16.4)</b>                         | <b>8 hrs</b>  |
| <b>10. Health Care of the Community Core (CM 17.1-17.5)</b>                          | <b>15 hrs</b> |
| a) Levels of health care   |               |
| b) Health care delivery system in India  |               |
| c) Voluntary health agencies and NGO's   |               |
| <b>11. International health (CM 18.1-18.2) Core</b>                                  | <b>2 hrs</b>  |
| <b>12. Hospital / Biomedical Waste Management (CM 14.1-14.3) Core</b>                | <b>2 hrs</b>  |
| <b>13. Disaster Management / Pandemic Management (CM 13.1-13.3) Core</b>             | <b>3 hrs</b>  |
| <b>14. Genetics and Health - Non-Core</b>  | <b>1 hr</b>   |
| <b>15. Communicable &amp; Non Communicable Diseases (CM 7.1-7.9) Core</b>            | <b>16 hrs</b> |
| <b>16. Geriatric Services (CM 12.1-12.3) Core</b>                                    | <b>1 hr</b>   |
| <b>17. Ethical issues in Health Research (AETCOM module) Core</b>                    | <b>4 hrs</b>  |
| <b>18. Essential Medicines and Counterfeit Medicines (CM 19.1-19.3) Core</b>         | <b>1 hr</b>   |
| <b>19. Recent advances in Community Medicine / Public Health (CM 20.1-20.4) Core</b> | <b>2 hrs</b>  |

**TOTAL Teaching hours = Theory + Small Group Discussion + Self Directed Learning= 80 hrs + 117hrs + 20 hrs = 217 hrs**

**Teaching methodology:**

1. Lecture
2. Seminar
3. Tutorials
4. Integrated Teaching

5. Case Based Teaching
6. Small Group discussions
7. Project Based Learning
8. Learning through Debate
9. Cinemeducation
10. Field Visits

### **III PROFESSIONAL YEAR**

#### **1. Practical**

**45 hrs**

1. MCH and Family planning methods
2. Immunization and cold chain system
3. Water problems
4. Essay type epidemiological problems
5. Statistical problems
6. Helminths and drugs
7. Insecticides and Disinfectants
8. Nutrition problems
9. Milk problems
10. Occupational safety devices and environmental health models

#### **2. Clinico- Social Case discussion**

**45 hrs**

1. Antenatal case
2. Postnatal case with new born
3. Hypertension
4. Diabetes Mellitus
5. Tuberculosis

6. Acute Respiratory infection
7. Rheumatic heart disease
8. HIV / AIDS
9. Protein Energy Malnutrition
10. Nutritional Anaemia
11. Acute Gastro-enteritis
12. Fever case – Malaria, Dengue, Enteric fever
13. Hepatitis / Jaundice
14. Leprosy
15. Dog-bite / Human Rabies

### **3. Project work**

**20 hrs**

**PRACTICAL = PRACTICALS + CLINICO-SOCIAL CASE DISCUSSION +  
FIELD VISITS + PROJECT WORK = 45 hrs + 45 hrs + 50 hrs + 20 hrs**

**= 160 hrs SKILLS:**

#### **PART – 1: General Skills**

The student should be able to:

- 1) Elicit the clinico – social history to describe the agent, host and environmental factors that determine and influence health.
- 2) Recognize and assist in management of common health problems of the community.
- 3) Apply elementary principles of epidemiology in carrying out simple epidemiological studies in the community.
- 4) Work as a team member in rendering health care.
- 5) Carry out health education effectively for the community.

## **PART – II: Skills in relation to specific Topic**

- 1) Communication:
  - a) The student should be able to communicate effectively with family members at home, patients at clinic or at home.
  - b) The student should be able to communicate effectively with an individual, family or a group for health education and peers at scientific forums.
- 2) Team activity: Work as a member of the health team, in planning and carrying out field work like school health.
- 3) Environmental sanitation: Collect water and stool samples for microbiological evaluation.
- 4) Communicable and non – communicable diseases (including social problems):
  - a) Eliciting clinico-social history and examining the patient for diagnosis and treatment.
  - b) Assessing the severity and /or classifying conditions such as dehydration in diarrhea, upper respiratory tract infection, dog-bite, leprosy etc.
  - c) Adequate and appropriate treatment and follow-up of leprosy, malaria, filariasis, rabies, upper respiratory tract infections, diarrhea and dehydration.
  - d) Advise on the prevention and prophylaxis of common diseases like vaccine preventable diseases, tetanus, malaria, filariasis, rabies, cholera, typhoid and intestinal parasites.
- 5) Maternal and Child Health
  - a) Antenatal examination of the mother: application of risk approach in antenatal care.
  - b) Postnatal assessment of mother and new born, advice on appropriate family planning method, promotion of breast feeding, advice on weaning and immunization
  - c) Assessment of growth and development of child – use of road to health card, immunization of the child and identifying high risk infants.
  - d) Skills in vaccine management including cold chain.

- 6) Statistics
  - a) Simple random sampling techniques.
  - b) Apply appropriate tests of significance to make a correct inference.
  - c) Sample analysis and presentation of data.
  - d) Calculation of various health indices.
  - e) Calculation of relative and attributable risks.
  - f) Calculation of sensitivity, specificity and predictive values of screening test.
- 7) Nutrition
  - a) Conducting a diet survey.
  - b) Community survey and clinical diagnosis of nutritional deficiencies like nutritional anemia, vitamin A deficiency, iodine deficiency and protein energy malnutrition.
  - c) Making recommendation regarding diet.
- 8) Occupational Health
  - a) Inspection of work sites.
  - b) Recommendations in improving work sites.
  - c) Supervision of workers and programmes.
- 9) Health Management
  - a) Be an effective team leader.
  - b) Guide and train workers.
  - c) Supervision of workers and programmes.
- 10) Managerial
  - a) Organize antenatal clinic and underfives' clinic.
  - b) To conduct meetings.

- c) Review of records/ reports
- d) Principles of supervision / monitoring

### **TEACHING HOURS**

- |  |           |
|--|-----------|
| (A) Theory   | 309 hours |
| (B) Practical, Clinico-social case discussion and Field visits | 280 hours |

### **D) SCHEME OF EXAMINATION**

#### **ELIGIBILITY FOR EXAMINATION**

1. The candidate must have undergone satisfactorily the approved course of the study in the subject within prescribed duration.
2. Should have at least **75%** of attendance in theory and **80%** in practical separately to become eligible to appear for the examination in the subject
3. Should have at least **40%** of total marks fixed by internal assessment both in theory and practical individually.
4. Should secure **50%** marks in aggregate of the total marks combined in theory and practical assigned for IA in the subject.

#### **INTERNAL ASSESSMENT: Total Marks 200 (Theory - 100 and Practical - 100)**

##### **Theory:**

- o Minimum two theory examinations are recommended in Professional Year I, Professional Year II and Professional Year III/I. The 7<sup>th</sup> term (preliminary) examination preceding the university examination may be similar to the pattern of university examination.
- o Average of all performances in the notified internal examinations & day to day activities shall be taken into consideration for calculating the internal assessment marks.

##### **PRACTICAL:**

I Internal Exam = II Phase II Term

II Internal Exam = End of Clinico-Social Posting in Third Phase

III Internal Exam = Preliminary Exam Phase III/ Part-1 /II Term (before University examination)

Note: **Internal Assessment Marks: Theory - 100 marks + Practical - 100 marks Total IA marks =200**

Note: A student shall secure at least **50%** combined in theory and practical IA (not less than **40%** in each) in the subject aggregate to be eligible to appear for the university examination.

Overall Internal Assessment

Internal Assessment (IA)		Theory Max. marks	Marks Obtained	Practical Max. Marks	Marks Obtained
IA -I		100		100	
IA -II		100		100	
Preliminary exams		100		100	
<b>Formative Assessment</b>					
<b>Part completion test</b>	Integrated SGT SDL	80		--	
				--	
				--	
Pandemic Module & Family Adoption Program		--		40	
Other than certifiable skills		--		30	
AETCOM Skills		10		10	
Co-Curricular and other academic activities		---		05	
Practical Record Book		---		05	
Logbook		10		10	
Total marks		<b>400</b>		<b>400</b>	
<b>Total marks reduced to 25%</b>		100		100	

## II) University Examination

### Theory:

The examination for Community Medicine will be held at the end of Professional Year III Part-I.

There shall be two theory papers, each carrying 100 marks.

Each theory paper shall be of 3 hours duration.

The pattern of Theory Question paper will include four types of questions as follows:

Type of Questions	Number of Questions	Marks for each Questions	Total
MCQs	20	1	20
Long Essay	2	10	20
Short Essay	9	5	45
Short answers	5	3	15
<b>Total Marks</b>			<b>100</b>

Distribution of topics in Paper I and Paper II, for the university examination is given below:

### Paper I:

**100 Marks**

Concepts of health and disease, Social medicine and medical sociology, Principles of Epidemiology & Epidemiologic studies, screening for diseases, environment and health, genetics and health, Hospital / bio-medical waste management, health education & communication, nutrition and dietetics, occupational health, mental health and health information system, Basic statistics and its application, Health programmes in India.

### Paper II:

**100 Marks**

Epidemiology of specific diseases: communicable and non- communicable diseases, Demography & Vital statistics, Family Planning/ Population control, Reproductive, Maternal and Child health, School health, Geriatrics services, Urban

health, Health care of Community in India, Health Planning & Management including Disaster Management, International health. Essential medicines and counterfeit medicines. Recent advances in Community Medicine & AETCOM.

**Chapter wise distribution of type of questions and marks will be as under :**

**THEORY PAPER – I**

<b>Chapter / Topic</b>	<b>Type and No. of Questions</b>	<b>Marks</b>
MCQs	20 questions X 1 mark	20
Concepts of Health & Disease, Principles of Epidemiology and Epidemiologic studies, Nutrition and Health, Occupational Health, Communication for Health Education, Environment and Health	Long Essay 2 Questions X 10 Marks	20
Concepts of Health & Disease, Principles of Epidemiology and Epidemiologic studies, Nutrition and Health, Occupational Health, Communication for Health Education, Screening for Diseases, Health programmes in India, Environment and Health, Genetics and Health, Mental Health, Hospital / bio-medical waste management, Health information system and Bio-statistics, Man & Medicine, Social Sciences and Health.	Short Essay 9 Questions X 5 Marks	45
Concepts of Health & Disease, Principles of Epidemiology and Epidemiologic studies, Nutrition and Health, Occupational Health, Communication for Health Education Screening for Diseases, Health programmes in India, Environment and Health, Genetics and Health, Mental Health, Hospital / bio-medical waste management, Health information system and Basic statistics and its application, Man & Medicine, Social Sciences and Health.	Short Answers 5 Questions X 3 Marks	15
<b>TOTAL</b>		<b>100</b>

## THEORY PAPER – II

Chapter / Topic	Type and No. of Questions	Marks
MCQs	20 Questions X 1 Mark	20
Epidemiology of Specific Diseases – Communicable Diseases & Non-communicable Diseases, Family Planning, MCH, health care of community in India, School Health Services.	Long Essay 2 Questions X 10 Marks	20
Epidemiology of Specific Diseases – Communicable Diseases & Non-communicable Diseases, Family Planning, Reproductive, maternal and child health, health care of community in India, School Health Services, Demography, Geriatrics, Health Planning & Management, Disaster Management, International Health & Urban Health	Short Essay 9 Questions X 5 Marks	45
Epidemiology of Specific Diseases – Communicable Diseases & Non-communicable Diseases, Family Planning, RMNCH, Health care of community in India, School Health Services, Demography, Geriatrics, Health Planning & Management, Disaster Management, International Health, Urban Health. Essential medicines and counterfeit medicines, Recent advances in community medicine, AETCOM	Short Answers 5 Questions X 3 Marks	15
<b>TOTAL</b>		<b>100</b>

The topics assigned to the different papers are generally evaluated under those sections; However, a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

Note: A candidate shall secure at least **40%** in each paper & **50%** of marks in theory aggregate to pass in theory exam.

**B. Practicals** **80 marks**

- |                                   |  |          |
|-----------------------------------|--|----------|
| 1. Problems                       | 3 X 9m (Vital Statistics, Biostatistics & Water) | 35 marks |
|                                   | 1 X 8m (Nutrition & Essay type)                  |          |
| 2. Clinico social case discussion | 1 X 35m  | 35 marks |
| 3. Spotters                       | 10 X 1m  | 10 marks |

**C. VIVA VOCE EXAMINATION MARKS** **20 Marks**

The viva-voce examination shall carry **20** marks and all examiners will conduct the viva-voce. There shall be two tables, each table will have one external and one internal examiner. The viva voce marks will be added to the practical examination.

**Distribution of topics and marks for viva voce as shown below:**

**Table – 1** **10 Marks**

Concepts of health and disease, Social medicine and medical sociology, Principles of Epidemiology & Epidemiologic studies, screening for diseases, environment and health, genetics and health, Hospital / bio-medical waste management, health education & communication, nutrition and dietetics, occupational health, mental health and health information system, Basic statistics and its application, Health programmes in India.

**Table – 2** **10 Marks**

Epidemiology of specific diseases: communicable and non- communicable diseases, Demography & Vital statistics, Family planning / Population control, Reproductive, maternal and child health, school health, geriatric services, urban health, health care of community in India, health planning & management including disaster management, international health. Essential medicines and counterfeit medicines. Recent advances in community medicine.

Note: A candidate shall secure at least **50%** of marks in Practical aggregate to pass the exam.

**TOTAL MARKS IN SUBJECT (COMMUNITY MEDICINE):**

Subject	Theory			Practicals / Clinicals & Viva Voce			
	Paper I	Paper II	Total	Practical Examination	Viva Voce	Total	Grand Total
Community Medicine	100	100	200	80	20	100	300

**Internal Assessment Marks: Theory - 100 marks Practical - 100 marks  
Total IA marks =200**

Note: A student shall secure at least **50%** combined in theory and practical IA (not less than **40%** in each) in the subject aggregate to be eligible to appear for the university examination.

**RECOMMENDED TEXT BOOKS FOR UNDER GRADUATES (Latest editions)**

<b>SI. No.</b>	<b>Name of the Text book</b>	<b>Author</b>	<b>Publisher</b>
1	Epidemiology and Management for Health Care for All	Sathe. P. V; Sathe. A. p	Popular Prakashan Pvt. Ltd. Mumbai
2	National Health Programmes of India	Kishore. J	Century Publication New Delhi
3	Principles of Community Medicine	Sridhar Rao. B	AITBS Publishers and Distributors
4	Text Book of Preventive and Social Medicine	Park J E & K. Park	M/s. Banarsidas Bhanot, Jabalpur
5	Text Book of Preventive and Social Medicine	Mahajan B. K. and M.C. Gupta	Jaypee Publications
6	Essential Preventive Medicine	Ghai O. P; Gupta Piyush	Vikas Publication house Pvt. Ltd
7	Text Book of Community Medicine	Bhaskar Rao T.	Paras Publication
8	Text Book of Community Medicine	Sunderlal, Adarsh, Pankaj	CBS Publisher and Distributors, New Delhi and Bangalore
9	Community Medicine with Recent advances	Suryakantha AH	Jaypee Brothers
10	WHO Basic Epidemiology	Bonita & Beaglehole	WHO, Geneva
11	Methods in Statistics	M.C. Mahajan	Jaypee Brothers
12	Principles and Practice of Biostatistics	J.V. Dixit	M/s Banaras Das Bhanot

## **CURRICULUM DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**

An Indian Medical Graduate by the end of the Professional Year –III/I should

1. Become competent Doctor who is able to handle Medico-legal cases effectively towards administration of justice and practice professionalism while delivering patient care giving utmost importance to the ethical guidelines set by law of the land (set by NMC).
2. Be aware of National Medical Commission and State Medical Council regulations, medical ethics and etiquette.

### **OBJECTIVES:**

#### **A. KNOWLEDGE:**

At the end of the course in the Forensic Medicine and Toxicology, the MBBS student should be:

1. Able to explain the basic concepts of the subject and its importance.
2. Describe inquest, legal and court procedures applicable to medico-legal cases and medical practice.
3. Describe code of ethics, duties and rights of medical practitioner, duties towards patients and community, punishment on violation of code of medical ethics, various forms of medical negligence, duties towards his professional colleagues.
4. Describe general principles of analytical, environmental, occupational toxicology including toxicovigilance and predictive toxicology.
5. Discuss the latest advances in Forensic Medicine and Toxicology and their medico-legal importance.
6. Discuss the various acts related to medical profession in a comprehensive way.
7. Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

**B. SKILLS:**

At the end of the course in the Forensic Medicine and Toxicology, the MBBS student should be:

1. Able to demonstrate medico legal autopsy under supervision.
2. Able to examine and certify the clinical Forensic Medicine cases like injuries, sexual offences, poisoning, etc, in living and dead.
3. Able to depose evidence in the court of law.
4. Demonstrate the importance of medico-legal, societal, ethical and humanitarian principles that influence health care while working as leader/ member of health care team.

**C. ATTITUDE / COMMUNICATION:**

At the end of the course in the Forensic Medicine and Toxicology, the MBBS student should:

1. Practice selflessness, integrity, responsibility, accountability and respect.
2. Respect and maintain professional boundaries between patients, colleagues and society.
3. Demonstrate ability to recognize and manage ethical and professional conflicts.
4. Abide by prescribed ethical and legal codes of conduct and practice.
5. Demonstrate a commitment to the growth of the medical profession as a whole.

**D. INTEGRATION:**

Department shall provide an integrated approach towards allied disciplines like Anatomy, Pathology, Radiology, Forensic Sciences, Hospital administration etc., to impart training regarding medico legal responsibilities of physicians at all levels of health care. Integration with relevant disciplines will provide scientific basis of Clinical Toxicology e.g.,Medicine, Pharmacology, etc.

## **COURSE CONTENTS**

The contents of the Forensic Medicine and Toxicology curriculum is based on the competencies enlisted in the Competency Based Undergraduate Curriculum for the Indian Medical Graduate (IMG)2018 - Volume I, drafted in conjunction with the new Graduate Medical Education Regulations (GMR).

### **Teaching Hours**

<b>Subject</b>	<b>Theory</b>	<b>Practical/SGT/Tutorials/Integrated teaching</b>	<b>SDL</b>	<b>Total Hours</b>
<b>Forensic Medicine and Toxicology</b>				
Professional year II	15	30	5	50
Professional year III part 1	25	45	5	75
<b>Total</b>	<b>40</b>	<b>75</b>	<b>10</b>	<b>125</b>

## **COURSE CONTENT**

### **A) THEORY**

#### **1) INTRODUCTION**

**01 Hr**

Non-Core

FM 1.1 Definitions - Forensic Medicine, Medical Jurisprudence, Medical Ethics and Etiquette.

FM 1.2 History of Forensic Medicine and Toxicology

#### **2) LEGAL PROCEDURE**

**06 Hrs**

Core

FM **1.7, 1.8 1.9 1.10 1.11** Dying declaration and dying deposition, latest court rulings and decisions, Medical records as documentary evidence (Sickness certificate, Injury certificate, MCCD etc), ICD 10

Non-core

FM 1.3 1.4, 1.5, 1.6, Investigation of Death in Suspicious Circumstances, Inquest, Different types of Inquests, Offences and types, types of Courts, Prosecutors, Fast Track Courts, Consumer's Courts, Trial of a Criminal Case, Pretrial preparation, Witness and types, Summons, Procedure in court, Record of evidence. Evidences, Types of evidence, Guidelines to a doctor in witness box.

Relevant CrPC, IPC, I E Act, Examination of dead body at the scene of crime / death.

#### **3) THANATOLOGY**

**06 Hrs**

Core

FM 2.1, 2.2, 2.3, 2.4, 2.5 2.6 2.7 2.8 2.9 2.10 Define Death, Types, Suspended Animation, Moment of Death, Modes of Death, Coma, Asphyxia, Syncope. Natural, Unnatural and Sudden Deaths, Postmortem diagnosis of Myocardial Infarction, Causes of Death, Presumption of Death and Survivorship.

Postmortem Changes -Types, Immediate, Early and Late Changes, Estimation of Time of Death, Cold Storage Effect, Preservation of Dead Bodies, Embalming, Transplantation of organs / tissues.

**4) POSTMORTEM EXAMINATION: MEDICOLEGAL AUTOPSY AND ARTIFACTS IN POSTMORTEM EXAMINATION 06 Hrs**

Core

FM 2.11 2.12 2.13 2.14 2.15 2.16 2.17 2.30 Autopsy - Definition, Types, Purpose, Rules and Procedure

Autopsy guidelines by NHRC, Autopsy room and facility for autopsy and Biosafety, Exhumation, External and Internal Examination, Viscera preservation - Procedure, Preservative used, Obscure autopsy, Negative autopsy, Postmortem Artifacts, Examination of mutilated and charred bodies, Skeletal remains, latest court decisions.

**5) IDENTIFICATION 08 Hrs**

Core

FM 1.9 1.10, 1.11, 3.1, 3.2 Importance of documentation in medical practice in MLC, ICD-10, , MCCD, Definition, Types, Data for identification, Determination of Race, ethnicity, Sex, Age, and their Medico legal Importance

Anthropometry: Stature, Scars, Tattoo marks,

Forensic odontology: Teeth Morphology, Eruption, Bite marks, Gustafson's technique, etc.

Bones - Ossification and other changes, Developmental features in different ages,

Dactylography, Foot print, Other prints, Poroscopy / Locard's principle, Hair and other fibres, Occupational Marks, Other identification features, Superimposition technique.

**IDENTIFICATION FROM TRACE SUBSTANCES AND THEIR OTHER EVIDENTIAL VALUES**

Core

FM 6.1 Method of Collection and preservation of trace substance, Locard's Principle of Exchange, Blood - Physical, Microscopic, Spectroscopic, Chemical, Micro chemical, Sero-immunological (group) tests, Disputed Paternity, abnormal Hemoglobin; Seminal fluid, Saliva, Vaginal fluid,

Fecal and Urinary stain, Examination of Skin, Tooth pulp, Nail.

## **6) FORENSIC TRAUMATOLOGY**

### **i. INJURIES - LEGAL CONSIDERATIONS AND TYPES 02 Hrs**

Core

FM 3.4, 3.5 Definitions, Different sections of I.P.C. related to offences against human body, Different classifications of bodily injuries.

Hurt (S. 319 IPC), Grievous hurt (S. 320 IPC), Assault (S. 351IPC),

Culpable homicide (S. 299, 300-302 IPC) - amounting to / not amounting to murder, Wound certificate, Ante-mortem & postmortem injuries, Manslaughter.

### **ii. MECHANICAL INJURIES 04 Hrs**

Core

FM 3.3, 3.6 3.7 3.8 Definition, Classification and mechanism of various types of mechanical injuries; Definition, Classification and mechanism of Abrasions, Bruise / Contusion, Lacerations, Incised wounds, Chop wounds and Punctured wounds; Defense, Self inflicted and fabricated wounds / cuts.

### **iii. THERMAL INJURIES 04 Hrs**

Core

FM 2.24 Definition and Classification, General effect of exposure to heat and cold; Local effect of exposure to heat and cold; Hypothermia, Frostbite, Trench foot, Immersion foot;

Heat hyperpyrexia / Heatstroke / Sunstroke, Heat Exhaustion / Collapse / Syncope, Heat cramps / Miner's cramps; Burns and Scalds; Causes of death, Chemical burns.

### **iv. INJURIES DUE TO ELECTRICITY, LIGHTNING AND RADIATIONS 01 Hr**

Core

FM 2.25 Electrocution, Electric burns, Causes of death, Judicial electrocution.

Lightning - wound of entry, wound of exit and causes of death.

Radiation - UV Rays, X-Rays, Radio Active substance, LASER beams injuries.

**v. REGIONAL INJURIES 04 Hrs**

Core

FM 3.11 Head injury in detail

Head - Scalp and face injury; Fracture of Skull - Coup and Contre coup injuries, Intracranial hemorrhages, Alcohol and Intracranial Hemorrhage; Concussion, Punch drunk, Injuries to brain substance, Injury to Neck, Chest, Abdomen, Limbs, Genital organs and Spinal cord.

**vi. COMMUNICATION AND TRANSPORTATION INJURIES 02 Hrs**

Core

FM 3.12 Road Traffic Accidents, Injuries to pedestrian, two wheeler riders and occupant of vehicle. Alcohol and RTA, Railway Accidents, Aviation Accidents, Shipwrecks in brief.

**vii. FIREARM INJURIES AND EXPLOSION INJURIES 06 Hrs**

Core

FM 3.9, 3.10 Definitions, types and parts of weapon, Cartridge, parts of cartridge. Entry and Exit wound in rifled and smooth bored weapons. Wound Ballistics, removal of bullet / pellet and preservation. Collection of material in living and dead victims of firearm injury, Blast injuries, Comparative microscope

**viii. MEDICO LEGAL ASPECTS OF INJURIES 02 Hrs**

Core

FM 3.6, 3.7 Factors influencing in the dating of wound; Infliction of Injuries and Healing; Different legal questions; Examination and Certification of Wounds; Causes of death in injury, Examination of weapon and certification

**7) VIOLENT ASPHYXIAL DEATHS 05 Hrs**

Core

FM 2.22 2.23 Definitions, Classification, Hanging, Lynching, Strangulations by ligature, other materials, Throttling, Garroting, Mugging, Suffocations -

Smothering, Choking, Cafe coronary, Traumatic asphyxia, Banskola, Gagging, Overlying, Burking, Drowning - types, mechanism and PM findings, Gettler's test, Masochistic asphyxial deaths.

## **8) MEDICAL JURISPRUDENCE**

**08 Hrs**

### LEGAL AND ETHICAL ASPECTS OF PRACTICE OF MEDICINE

#### Core

FM 4.1 to 4.30 Oath of Hippocrates; Declaration of Geneva-1948; International and National Code of Medical Ethics and Etiquette.

Acts related to Medical Practice e.g. National Medical Commission, Indian Medical Council and State Medical Council Acts.

Rights, Privileges and Duties of a Registered Medical Practitioner, Professional secrecy, Privileged communication, Rights of patient, Infamous conduct, Codes laid down by M.C.I.,

Malpractice or Negligence - Civil and Criminal, Medical Maloccurrence, Therapeutic Misadventure, Corporate Negligence, Doctrine of Common knowledge, Novus Actus Interveniens, Product liability, Duties of a Patient, Contributory negligence, Vicarious responsibility, Doctrine of Res Ipsa Loquitur, etc.

Maintenance of Medical Records; Certification of birth, death, illness and fitness, Consent, Human organ Transplant Act 1994, Euthanasia, COPRA.

Precautions against charge of Negligence Non Core

Family violence, NHRC, Protection of Human Rights Acts, Human Experimentation and Cloning.

## **9) FORENSIC PSYCHIATRY**

**04 Hrs**

#### Core

FM 5.1 to 5.5 Role of Forensic Psychiatrist, Causes of Mental illness (insanity), Types, Some definitions - Psychopathic disorders, Schizophrenia, Epileptic insanity, Maniac-Depressive Psychosis, Mental retardation, Dementia, Impulse, Mental sub-normality,

Diagnosis of mental illness, True and Feigned Mental illness. Civil and Criminal responsibilities of mentally ill person, Related different criminal rules.

Diminished responsibility, Mental Health Certificate

**Non Core**

FM 5.6 Mental Health Act 1987, Restraint procedures - Admission of Mentally ill person in a Hospital or Nursing Home; Discharge from Hospital.

**10) MEDICOLEGAL ASPECTS RELATED TO SEX AND MARRIAGE ANNULMENT**

**i. IMPOTENCE, FRIGIDITY STERILITY, VIRGINITY AND DEFLOURATION 02 Hrs**

**Core**

FM 3.18 3.22 3.23 3.24 3.25 3.26 Definitions, Medico legal aspects, Causes of Sterilization, Certification, difference between sterility and impotence, Artificial insemination. Definitions, Types of hymen, True virgin, False virgin, Impotence in female, , Regulations of ART clinics.

**Non-core**

National family Health Survey, Surgical methods of contraception.

**ii. PREGNANCY AND DELIVERY 02 Hrs**

**Core**

FM 3.19, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 3.26 Signs of pregnancy, Duration of pregnancy, fetal viability, Pseudocyesis, Fictitious child,

Posthumous child and Medico legal aspects; Precipitate labor, Signs of recent and remote delivery in living and dead, Parous and Nulliparous uterus. Superfetation, Superfecundation, Surrogate mother, Concealment of birth, Legitimacy, Disputed paternity and maternity, Artificial insemination – Its Types, Ethical and Legal issues, In vitro fertilization, Test Tube Baby, Cloning

### **iii. ABORTION**

**02 Hrs**

#### **Core**

FM 3.27 3.28 Types of abortion; Causes of natural abortion; Criminal abortion and related IPC; PCPNDT Act

Methods of abortion; MTP Act and Rule; Causes of death in abortion; Diagnosis in living and dead; Preserve Material for investigation, Medical Abortion, MTP drugs

### **iv. SEXUAL OFFENCES AND PERVERSIONS**

**04 Hrs**

#### **Core**

FM 3.16 3.17 Definitions, Types, Natural offences, Unnatural offences, Sexual Perversions, Relevant IPC sections and POCSO Act; Method of examination of victim and accused; Preservation of material for microscopic and serological study, Date Rape drugs.

### **11) INFANTICIDE**

**04 Hrs**

#### **Core**

FM 3.29 Definitions, Medico legal questions, Still birth, Dead birth, Live birth, viability, Signs of full term fetus, Natural causes of infant death, Modes of infanticide, acts of omission, acts of commission, Concealment of birth, Crib death, Battered Baby Syndrome, English law provision, Abandonment of child.

### **12) MISCELLANEOUS**

#### **Core**

- i. FM 4.7 BLOOD TRANSFUSION AND AIDS: 01 Hr  
Hazards of Blood Transfusion; Social, Medical, Legal and Ethical Problems with AIDS; Autopsy in AIDS Cases
- ii. FM 3.29 CRIME AND CRUELTY AT HOME: 01 Hr  
On children (Battered child), Battered wife / husband / elderly people and other members.
- iii. FM 2.26 STARVATION: 01 Hr  
Types, Features, Medico legal importance

iv. FORENSIC SCIENCE LABORATORY (F.S.L.): 02 Hrs

FM 6.1, 7.1, 8.10 Chromatography - Types, Electrophoresis, Spectroscopy, Spectrophotometry - Types, Uses of - Neutron Activation Analysis, Comparative microscope, Fluorescent microscope, Polarizing microscope, Electron Scanning Microscope,

**Non-core**

Polygraph, Narcoanalysis in brief, Brain Mapping, Digital Autopsy, Virtual autopsy, Facial reconstruction, DNA profiling.

v. ANAESTHETIC DEATHS

**13) FORENSIC TOXICOLOGY** 01 Hr

**i. GENERAL ASPECTS** 04 Hrs

**Core**

FM 8.1 to 8.9 Definitions of Toxicology, Poisons, Drugs; Different Acts,

Classifications of poisons, Their Sources, Nature of use, Route of use, Actions, Factors influencing; Duties of Doctor, Diagnosis in living, Common bedside screening tests - Thin Layer Chromatography (TLC); Treatment - Method, Antidotes; Ideal Suicidal and Homicidal poisons; Diagnosis in dead - by examination, Viscera preservation, Poison Detection Laboratory / Centre, HPLC, Gas chromatography and Recent advances in diagnostic techniques.

**ii. CORROSIVE AGENTS** 02 Hrs

**Core**

FM 9.1 Sulphuric acid, Nitric acid, Hydrochloric acid, Carbolic acid, Oxalic acid, Corrosive alkalis

**iii. ORGANIC AND INORGANIC CHEMICAL IRRITANTS** 02 Hrs

**Core**

FM 9.2 9.3 9.5 Metallic inorganic Chemical irritants: - Arsenic, Mercury, Lead, Copper, Iron, etc.

Organic Chemical irritants :- Agricultural poisons – Classification, Organophosphorus, Carbamate, Organochlorine (endrine), Pyrethrine / Pyrethroids, Zinc phosphide, Aluminium phosphide, etc.

Non-metallic inorganic Chemical irritants: - Phosphorus, Iodine

Mechanical: - Glass powder, Diamond Powder, Others

Non-metallic inorganic Chemical irritants: - Chlorine

**iv. VEGETABLE IRRITANTS 02 Hrs**

**Core**

FM 11.1 Abrus precatorius, Castor beans, Croton tiglium, Semicarpus anacardium, Calotropis, Capsicum

**v. ANIMAL IRRITANTS 02 Hrs**

**Core**

FM 11.1 Snakes, Scorpions, Centipedes, Cantharides, Bees and Wasps, Venomous aquatic animals (By Stinging, Contact, Eating)

**vi. CEREBRAL POISONS 04 Hrs**

**Core**

FM 9.4 10.1 12.1

- i. Somniferous - Opium and Opiates, Morphine, Heroin, Pethidine, Codeine,
- ii. Inebriants - Ethyl alcohol, Methyl alcohol, Isopropyl alcohol, Chloroform,
- iii. Hypnotics - Barbiturates, Chloral hydrate.
- iv. Cerebral stimulants - Amphetamine, Caffeine, Tranquilisers,
- v. Deliriant - Datura, (hyoscine, hyoscyamine, atropine, belladonna) Cocaine, Cannabis, Miscellaneous - Kerosene, Formaldehyde.
- vi. Hallucinogen - LSD, Mescaline, Nutmeg, Hallucinogenic Dimethyl tryptamine, Phencyclidine, Date rape drugs, Anti-pyretics, Anti-infectives, Narcotics.

**vii. SPINAL AND PERIPHERAL NERVE POISONS** **01 Hr**

**Core**

Strychnine,

Other than cholinesterase inhibitors, Curare

**viii. CARDIAC POISONS** **02 Hrs**

**Core**

FM 10.1 Aconite, Nicotine, Digitalis, Cerbera Thevetia, Nerium Odorum, Quinine, Cinchonine, Glory Lilly, Cerebera Odalum

**ix. ASPHYXIANTS** **02 Hrs**

**Core**

FM 9.6 HCN, CO, CO<sub>2</sub>, H<sub>2</sub>S, COCl<sub>2</sub> (Phosgene), SO<sub>2</sub>, Phosphine, War Gases, Gases / Chemicals used in recent war

**x. FOOD POISONING** **02 Hrs**

**Core**

Botulin Toxin, Poisonous Mushrooms (Amanita Muscaria, phalloides, Destroying Angel) Ichthyotoxicosis, Lathyrus Sativa, Ergot, Argemone Mexicana, Ptomaines, Food Allergy, aflatoxin.

**xi. DRUG DEPENDENCE AND ABUSE** **02 Hrs Core**

FM 12.1 Definitions, Types of drug users, Drug Abuse, Psychological and Physiological Dependence, Factors mattering, Assessment and dealing of the problem, Rave Parties, Drug addict rehabilitation centers, Acts and punishment for drug abuse and dependence.

## TEACHING HOURS

	TOPICS	Hours 115
1)	INTRODUCTION	(2)
2)	LEGAL PROCEDURE	(6)
3)	THANATOLOGY	(6)
4)	POSTMORTEM EXAMINATION: MEDICOLEGAL AUTOPSY AND ARTIFACTS IN POSTMORTEM EXAMINATION	(6)
5)	IDENTIFICATION	(8)
6)	FORENSIC TRAUMATOLOGY	(25)
	i. INJURIES - LEGAL CONSIDERATIONS AND TYPES	2
	ii. MECHANICAL INJURIES	4
	iii. THERMAL INJURIES	4
	iv. INJURIES DUE TO ELECTRICITY, LIGHTNING AND RADIATIONS	1
	v. REGIONAL INJURIES	4
	vi. COMMUNICATION AND TRANSPORTATION INJURIES	2
	vii. FIREARM INJURIES AND EXPLOSION INJURIES	6
	viii. MEDICO LEGAL ASPECTS OF INJURIES	2
7)	VIOLENT ASPHYXIAL DEATHS	(5)
8)	MEDICAL JURISPRUDENCE	(8)
9)	FORENSIC PSYCHIATRY	(4)
10)	MEDICOLEGAL ASPECTS RELATED TO SEX AND MARRIAGE ANNULMENT	(10)
	i. IMPOTENCE, FRIGIDITY STERILITY, VIRGINITY AND DEFLORATION	2
	ii. PREGNANCY AND DELIVERY	2
	iii. ABORTION	2
	iv. SEXUAL OFFENCES AND PERVERSIONS	4
11)	INFANTICIDE	(4)
12)	MISCELLANEOUS	(6)
	i. BLOOD TRANSFUSION AND AIDS	1
	ii. CRIME AND CRUELTY AT HOME	1
	iii. STARVATION	1
	iv. FORENSIC SCIENCE LABORATORY (F.S.L.)	2
	v. ANAESTHETIC DEATHS	1
13)	FORENSIC TOXICOLOGY	(25)
	i. GENERAL ASPECTS	4
	ii. CORROSIVE AGENTS	2
	iii. ORGANIC AND INORGANIC CHEMICAL IRRITANTS	2

iv. VEGETABLE IRRITANTS	2
v. ANIMAL IRRITANTS	2
vi. CEREBRAL POISONS	4
vii. SPINAL AND PERIPHERAL NERVE POISONS	1
viii.CARDIAC POISONS	2
ix. ASPHYXIANTS	2
x. FOOD POISONING	2
xi. DRUG DEPENDENCE AND ABUSE	2

## **B) PRACTICALS**

1. Demonstrations of 10 medico-legal autopsies (variety cases).  
"Students must witness minimum of 10 autopsy cases prior to preliminary examination".
2. Casualty posting for 15 days for demonstration of medico legal cases and briefing about casualty functioning.
3. Age estimation by physical, dental and radiological examination (preferably child).
4. Examination of X-Rays
5. Examination of Bones.
6. Examination of Weapons.
7. Toxicological specimens and poisonous plants.
8. Wet specimens
9. Photographs.
10. Briefing about Drunken case and sexual offence cases.
11. Microscopy - slides (spermatozoa, diatoms, nucleated RBC, non-nucleated RBC, Hair and fiber).
12. Medico legal certificates with SPMP (simulated patient management problem) Technique
  - i. Injury / wound certificate,

- ii. Potency certificate,
- iii. Drunkenness certificate,
- iv. MCCD,
- v. Sickness & Fitness certificate
- vi. Recording of informed consent,
- vii. Examination of sexual offence cases(victim & accused)

13. Visit to court and scene of crime

Practical record book should be maintained with entry of various reports/ certificate and practical exercises.

**TOTAL HOURS OF TEACHING: 134 (Including AETCOM)**

S. NO.	COMPETENCY NO.	TOPIC	HOURS
THEORY– FORENSIC MEDICINE			
1.	1.1 – 1.3	INTRODUCTION AND COURTS RELATED	1
2.	1.4 – 1.5	COURT PROCEDURE AND POWERS	1
3.	1.6 – 1.7	DD AND OTHERS	1
4.	2.1 – 2.3	DEATH	1
5.	2.5 – 2.9	DEATH AND CHANGES	2
6.	2.10 – 2.14	PM EXAMINATION	2
7.	2.16 – 2.18	EXHUMATION AND BONES	1
8.	2.20 – 2.23	ASPHYXIA	1
9.	2.24 – 2.25	BURNS	1
10.	2.27 – 2.28	INFANT DEATHS	1
11.	3.1 – 3.2	IDENTIFICATION	2
12.	3.3 – 3.12	INJURY	3
13.	3.13 – 3.17	SEXUAL OFFENCES	2
14.	3.18 – 3.20	VIRGINITY / PREGNANCY	1
15.	3.22 – 3.23	IMPOTENCE / SURROGATE ETC.	1
16.	3.27 – 3.29	ABORTION	1
17.	4.1 – 4.23	ETHICS	4
18.	5.1 – 5.6	PSYCHIATRY	2
19.	7.1, 2.35. 3.32. 6.1 – 6.3	FSL	2
20.	2.4, 2.15, 2.26, 2.30, FM 1.8, 2.31, FM 4.9, 2.31, FM 4.14, 2.33-34, 3.21, 3.23 - 26, 3.30 - 33,	AETCOM	10

THEORY – TOXICOLOGY			
S. NO.	COMPETENCY NO.	TOPIC	HOURS
1.	8.1 – 8.4	INTRODUCTION AND LAWS	1
2.	8.6 – 8.8	GENERAL TREATMENT	1
3.	8.7, 8.9, 8.10	BED SIDE TEST AND FSL	2
4.	9.1	CORROSIVES	1
5.	9.2	NON METALLIC	1
6.	9.3	HEAVY METALS	1
7.	9.4	ALCOHOL	1
8.	9.5	ORGANOPHOPHOROUS	1
9.	9.6	ASPHYXIANTS	1
10.	10.1	DRUGS AND OTHERS	2
11.	11.1	SNAKE	1
12.	12.1	DERUG ABUSE	1
13.	13.1 - 13.2	ENVIRNOMENATAL	1

S. NO.	COMPETENCY NO.	TOPIC	HOURS
1.	14.1	INJURY	4
2.	14.2	POISONING INJURY	1
3.	14.3, 8.5	POISONING SAMPLING	2
4.	14.4	AGE ESTIMATION	4
5.	14.5	PM EXAMINATION	15
6.	14.6	HAIR / SEMEN ETC.	5
7.	14.7, 14.8	BLOOD	1
8.	14.9	BONES	1
9.	14.10	SPECIMENS (DRY, WET, PHOTO ETC.)	4
10.	14.11	WEAPONS	2
11.	14.12	FIREARM	2
12.	14.13	FETUS	1
13.	14.14	SEXUAL OFFENCES - NATURAL	4
14.	14.15	SEXUAL OFFENCES – UNNATURAL	4
15.	14.16	DRUNKENNESS	2
16.	14.17	SPECIFIC POISONS	4
17.	14.18	EXAMINATION – ARRESTED PERSON	2
18.	14.19	SLIDE EXAMINATION	2
19.	14.20	DYING	2
20.	14.21	DNA	2
21.	14.22, 2.29	MOOT COURT	2
22.	11.1	SNAKE	2
23.	3.1	IDENTIFICATION	3
24.	2.21	ASPHYXIA	2
25.	1.9	SICKNESS / FITNESS	2
26.	1.10, 1.11	CAUSE OF DEATH	4

**TOTAL HOURS AS PER PRESENT DOCUMENT - 40+15+79 = 134  
OSPE TRAINING**

OSPE training will be conducted during the 2<sup>nd</sup> Internal assessment including procedure stations, Slides, Charts with patient Vignets, etc.

**Scheme of examination**

**Internal assessment**

**Theory (100 marks)**

A minimum of two theory examinations shall be conducted in professional year II and III/I theory examinations including preliminary examination in professional year III part I at the end of each Blocks i.e., 1<sup>st</sup>, 2<sup>nd</sup> in Professional Year II year and 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> in Professional Year III/I year respectively. The theory exams 1<sup>st</sup> & 2<sup>nd</sup> (50 marks each) conducted in professional year II will be considered as IA-1 (100 marks). The theory exams 3<sup>rd</sup> and 4<sup>th</sup> (50 marks each) conducted in professional year III- will be considered as IA-2 (100 marks). The 5<sup>th</sup> IA (Preliminary) examination preceding the university examination will be similar to the pattern of university examination i.e., one theory paper of 100 marks. Formative theory assessment will be done for 100 marks. Total marks secured both in theory examinations and formative theory assessment will be reduced to 100 marks.

**Practical and Viva-voce (100 marks)**

A minimum of two practical examinations shall be conducted in professional year II and III/I practical examinations including preliminary examination in professional year III part I at the end of each Blocks i.e., 1<sup>st</sup>, 2<sup>nd</sup> in Professional Year II year and 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> in Professional Year III/I year respectively. The practical exams 1<sup>st</sup> & 2<sup>nd</sup> (50 marks each) conducted in professional year II will be considered as IA-1 (100 marks). The practical exams 3<sup>rd</sup> and 4<sup>th</sup> (50 marks each) conducted in professional year III- will be considered as IA-2 (100 marks). The 5<sup>th</sup> IA (Preliminary) examination preceding the university examination will be similar to the pattern of university examination i.e., 100 marks - 80 marks for practicals and 20 marks for viva voce. Formative practical assessment will be done for 100 marks. Total marks secured both in practical examinations and formative practical assessment will be reduced to 100 marks.

## **SCHEME OF EXAMINATION**

### **B) UNIVERSITY EXAMINATION ELIGIBILITY FOR EXAMINATION**

1. The candidate must have undergone satisfactorily the approved course of the study in the subject within prescribed duration.
2. Should have at least 75% of attendance in theory and 80% in practical separately to become eligible to appear for the examination in the subject.
3. Should have at least 40% of total marks fixed by internal assessment both in theory and practical individually.
4. Should secure 50% marks in aggregate of the total marks combined in theory and practical assigned for IA in the subject.

## SCHEME OF EXAMINATION

Internal and Formative Assessment:

### THEORY & PRACTICAL

Internal Assessment (IA)		Theory Max. marks	Marks Obtained	Practical Max. Marks	Marks Obtained
IA - I		100		100	
IA - II		100		100	
Preliminary exams		100		100	
<b>Formative Assessment</b>					
<b>Part completion test</b>	Integrated SGT SDL	80		--	
				--	
				--	
Certifiable skills		--		40	
Non certifiable skills		--		30	
AETCOM Skills		10		10	
Co-Curricular and other academic activities		---		05	
Practical Record Book		---		05	
Logbook		10		10	
Total marks		<b>400</b>		<b>400</b>	
<b>Total marks reduced to 25%</b>		100		100	

## I. WRITTEN PAPER: 100 marks

There shall be one theory paper carrying 100 marks and duration of the paper shall be of three hours. (Duration of MCQ examination shall be 30 minutes and there is no negative marking for wrong answers. The MCQ answer script will be collected after 30 minutes)

Type of questions	Number of questions	Marks for each question	Total marks
MCQS	20	1	20
Long Essay	2	10	20
Short Essay	9	5	45
Short Answers	5	3	15
<b>Grand Total</b>			<b>100</b>

## II. PRACTICAL EXAMINATION

**80 marks**

Table No.	Exercise	Duration (Minutes)	Number	Total Marks
1	Age estimation by Physical, dental and radiological examination	20	1	20
2	X-ray examination <b>or</b> Bone examination	20	1	20
3	<b>Major certificates (Any One)</b> <ul style="list-style-type: none"><li>- Examination of Victim/ Accused of Sexual Offence</li><li>- Drunkenness Certification</li><li>- Wound Certificate</li></ul>	20	1	20

4	<b>Minor certificates (Any One)</b> - MCCD certificate - Sickness and Fitness - Potency Certificate	15	1	10
5	Spotters (Poisons, wet specimens, weapons, autopsy instruments, slides, X-ray and photographs)	15	1	10
<b>Total</b>		<b>90 minutes</b>		<b>80 Marks</b>

### III. Viva-Voce examination

**Maximum Marks - 20**

The candidate shall be examined by all the four examiners at four tables. Viva will focus on application and interpretation. Viva marks will be added to practical and not to theory. Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination. The distribution of topics and marks for each table are shown below:

#### Distribution of topics and marks

VIVA VOCE	Table I	Table II	Table III	Table IV
Topics	Medico-legal autopsy and Forensic Pathology	Clinical Forensic Medicine	Medical Jurisprudence, FSL and Forensic Psychiatry	Toxicology
Marks	5 Marks	5 Marks	5 Marks	5 Marks

#### EXAMINATION COMPONENTS WITH DISTRIBUTION OF MARKS

1	Written Paper: Number of paper and maximum marks for each paper	1 X 100 = 100 MARKS
2	Practical examination + Viva Voce	80 + 20 = 100 MARKS
Total		200 MARKS

- For declaration of pass in this subject in university examination, A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in this subject.

**RECOMMENDED TEXT BOOKS FOR UNDER GRADUATES (Latest editions)**

Sl. No	Title	Author	Publisher
1.	The Essentials of Forensic Medicine and Toxicology	Narayana Reddy K.S.N, Murthy O.P.	Jaypee Brothers Medical Publishers, New Delhi
2.	Text book of Forensic Medicine and Toxicology	Pillay V.V.	Paras Medical Publishers Hyderabad
3.	Principles of Forensic Medicine	Apurba Nandy	New Central Book Agency, Calcutta
4.	Text Book of Forensic Medicine and Toxicology	Krishnan Vij	Elsevier Ltd, New Delhi.
5.	Modi J.P. Text Book of Medical Jurisprudence and Toxicology	Muthiwaran K , Patnaik A J	Levis Nexes Butterworth
6.	Text book of Medical Jurisprudence and Toxicology	Parikh C.K	CBS Publishes and Distributers, New Delhi.
7.	Forensic Medicine, Toxicology and Medical Jurisprudence,	Subramanyam B.V.	Modern Publishers, New Delhi.
8.	Text book of Forensic Medicine and Toxicology	P.C. Dikshit	Pee Pee Publishers and Distributors(P) LTD
9.	Text book of Forensic Medicine	Ajay Kumar	Avichal publishing Company
10.	Review of Forensic Medicine and Toxicology	Gautam Biswas	Jaypee Brothers
11.	Modern Text book of Forensic Medicine and Toxicology	Putul Mahanta	Jaypee Brothers
12.	Principles of Forensic Medicine and Toxicology	Bardale R.	Jaypee Brothers
13.	Text book of Forensic Medicine and Toxicology	Ignatius P.C.	Elsevier India

Professional year II

II year: Theory-15 / SGT-30 (Practical/SGT/Tutorials/Integrated teaching) / SDL-5 = Total 50 hours)

Topics: (Theory – 15 Hours)

### **Legal Procedures**

FM 1.1 Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic Medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence

FM 1.2 Describe history of Forensic Medicine FM 1.3

Describe legal procedures including Criminal Procedure Code, Indian Penal Code, Indian Evidence Act, Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences

FM 1.5

Describe Court procedures including issue of Summons, conduct money, types of witnesses, recording of evidence oath, affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence & conduct of doctor in witness box

FM 1.6 Describe the offences in Court including Perjury, Court strictures vis-à-vis medical officer

FM 1.7 Describe Dying declaration and dying deposition

FM 1.8 Describe the latest decisions / notifications / resolutions / circulars / standing orders related to medico legal practice issued by courts / Government authorities, etc.

### **Identification**

FM 3.1 Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion,

FM 3.2

Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy& superimposition

### **Thanatology**

FM 2.1

Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death

FM 2.2

Describe and discuss natural and unnatural deaths

FM 2.3

Describe and discuss issues related to sudden natural deaths

FM 2.5

Discuss moment of death, modes of death - coma, asphyxia and syncope

FM 2.6

Discuss presumption of death and survivorship

FM 2.8

Describe and discuss postmortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening

FM 2.9

Describe putrefaction, mummification, adipocere and maceration

### **Mechanical Injuries**

FM 3.3 Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound,

## **Toxicology**

FM 11.1

Animal irritants

Topics: (Practical/SGT/Tutorials/Integrated teaching – 30 Hours)

1. Seminar and SGD on Documentary evidence
2. Examination of skeletal remains – Long bones and X-rays of long bones (FM 2.16, 14.9)
3. Examination of skeletal remains – skull and mandible (FM 2.16, 14.9)
4. Practical exercises – skeletal remains – Pelvis bone and Pelvic X-ray (FM 2.16, 14.9)
5. Age estimation by physical and dental examination (FM 3.2)
6. Seminar and SGD on Human Organ Transplantation Act (FM 2.4)
7. Estimation of time since death (FM 2.10)
8. Injury certificate (FM 1.9)
9. Euthanasia (integration with Pharmacology = AETCOM)

Topics: (SDL – 5 Hours)

SDL 1 (FM 1.3, 1.4)

IPC, CrPC, IEA, Civil and Criminal cases, Types and powers of Courts in India  
SDL 2 (FM 14.3)

(Integration with Anatomy) Ossification of bones SDL 3 (FM 2.10)

Forensic entomology SDL 4 (FM 3.4)

IPC S. 44, 319, 320, 324, 326, 351

SDL 5 (M 1.9)

Sickness and fitness certificate

Note : Rest of the portion will be covered in Professional year 3<sup>rd</sup> Part I