BLDE
(DEEMED TO BE UNIVERSITY)

Competency Based Medical Education
(CBME)
Revised Curriculum
MBBS
Phase-II
2020-21

Published by
BLDE
(DEEMED TO BE UNIVERSITY)
Declared as Deemed to be University u/s 3 of UGC Act, 1956

The Constituent College
SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA
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BLDE(DU)/REG/UG-Phase-II/2020-21/1324 September 19, 2020

NOTIFICATION

Sub: Competency Based Medical Education (CBME) based Revision of Curriculum of MBBS Phase-II, 2020-21

Ref: 1. Medical Council of India Regulation on Graduate Medical Education, 1997 and Subsequent amendments of the same from time-to-time.
2. Minutes of the meeting of the 33rd Academic Council of the University held on August 25, 2020.
3. Minutes of the meeting of the 52nd BoM of the University held on August 25, 2020.
4. On approval of Hon'ble Vice-Chancellor Order No.2343, dtd.19-09-2020.

The Board of Management of the Deemed to be University is pleased to approve the CBME based Revised Curriculum of **MBBS Phase-II** at its 52nd meeting held on August 25, 2020.

The revised curriculum shall be effective from the Academic Session 2020-21 onwards, for MBBS Phase-II course in the constituent College of the University viz. Shri B. M. Patil Medical College, Hospital and Research Centre.

REGISTRAR
REGISTRAR
BLDE (Deemed to be University)
Vijayapura-586103. Karnataka

Copy to:
- The Secretary, MCI, New Delhi
- The Secretary, UGC, New Delhi
- The Dean, Faculty of Medicine and Principal
- The Dean, Faculty of Allied Health Sciences
- The Medical Superintendent
- The Vice Principal
- The Vice Principal (Academics)
- The Controller of Examinations
- The Dean, Student Affairs
- The Dean, R&D
- The Coordinator, IQAC
- The Prof. & HoDs of Pre, Para and Clinical Departments
- PS to the Hon'ble Chancellor
- PS to the Hon'ble Vice-Chancellor

Smt. Bangaramma Sajjan Campus, B. M. Patil Road (Sholapur Road), Vijayapura - 586103, Karnataka, India.
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Our Vision

"To be a Leader and be recognized as an Institution striving for maintenance and enhancement of Quality Medical Education and Healthcare"

Our Mission

- To be committed to promote sustainable development of higher education including Health science education, consistent with the statutory and regulatory requirements.
- Reflect the needs of changing technology and make use of the academic autonomy to identify the academic programs that are dynamic.
- Adopt global concepts in education in the healthcare sector.

Introduction

The revised M.B.B.S curriculum of The Medical Council of India (MCI) came into effect from May 1997 and it has undergone amendments thereof. The BLDE Deemed to be University has implemented the new regulations for the batches of students admitted to the M.B.B.S course from the academic year 2008-09 and onwards. Later the curriculum was revised in 2012-13 and 2016-17. This fourth revision will be implemented for the batches of students admitted to the M.B.B.S Course from the academic year 2019-20 onwards. The fourth revision, in consonance with MCI, adopts Competency Based Medical Education from the year 2019-20.

SECTION - I

Objectives of Medical Education

(As stated in MCI Regulations, 1997 amended up to May 2018)

This section contains the goals and general objectives of graduate medical education as stated in MCI Regulations.

Competencies for the Indian Medical Graduate

This content is cited from "Medical Council of India, Competency based Undergraduate curriculum for the Indian Medical Graduate, 2018. (Vol.1; pages 14-20.)"

Section 1 provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program 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 program are hereby prescribed:

2.1. 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 fulfill his/her social obligations towards realization of this goal.
b) Learn every aspect of National policies on health and devote herself/himself 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.

2.2. 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 and rehabilitative medicine in respect to the commonly encountered health problems.
c) Appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
d) Be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities
e) Possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.

f) Be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
    - Family Welfare and Maternal and Child Health (MCH);
    - Sanitation and water supply;
    - Prevention and control of communicable and non-communicable diseases;
    - Immunization;
    - Health Education;
    - Indian Public Health Standards (IPHS) at various level of service delivery;
    - Bio-medical waste disposal; and
    - 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, General and hospital management, principal inventory skills and counseling.

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 including 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 skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:

2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.

2.3.3. Communicator with patients, families, colleagues and community.

2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.

2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. 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 as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.

3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.

3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

3.1.4 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.

3.1.5. 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.

3.1.6. 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.

3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.

3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.

3.1.9 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.

3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.

3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.

3.1.12 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:

i) Disease prevention,
ii) Health promotion and cure,
iii) Pain and distress alleviation, and
iv) Rehabilitation and palliation Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.

3.1.13 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.

3.1.14 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3*.2. Leader and member of the health care team and system*

3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.

3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.

3.2.3 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.

3.2.4 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.

3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.

3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. ***Communicator with patients, families, colleagues and community***

3.3.1 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.

3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.

3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision making.

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

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically revaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

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

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Broad Outline on training format

4.1. In order to ensure that training is in alignment with the goals and competencies listed in sub-clause 2 and 3 above:

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

4.1.2 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.

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

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

4.1.5. 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.

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

4.1.7. 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.

4.1.8. 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.

4.2. 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.

SECTION - II

REGULATIONS GOVERNING M.B.B.S. DEGREE COURSE

(Eligibility for Admission, Duration, Attendance and Scheme of Examination as per the norms laid down in the Regulations on Graduate Medical Education of Medical Council of India and the amendments thereof (May 2018); admission to UG course - MBBS)

1. ELIGIBILITY

1.1 Qualifying Examination

Student seeking admission to first MBBS course:

i) shall have passed two year Pre University examination conducted by Department of Pre University Education, Karnataka State, with English as one of the subjects and Physics, Chemistry and Biology as optional subjects. The candidate shall have passed subjects of English, Physics, Chemistry and Biology individually.

OR

ii) shall have passed any other examination conducted by Boards / Councils / Intermediate examination established by State Governments / Central Government and recognized as equivalent to two year Pre University examination by the BLDE Deemed to be University / Association of Indian Universities (AIU), with English as one of the subjects and Physics, Chemistry and Biology as optional subjects and the candidate shall have passed subjects of English, Physics, Chemistry and Biology individually.

OR

iii) shall have passed Intermediate examination in Science of an Indian University / Board / council or other recognized examining bodies with Physics, Chemistry and Biology, which shall include a practical test in these subjects and also English as compulsory subject. The candidate shall have passed subjects of English, Physics, Chemistry and Biology individually.

OR

iv) shall have passed first year of the three year degree course of a recognized University with Physics, Chemistry and Biology including a practical test in these subjects provided the examination is an ‘University Examination’ provided that the candidate

shall have passed subjects of English, Physics, Chemistry and Biology individually in the Pre University or other examinations mentioned in the clauses above.

OR

v) shall have passed B.Sc. Examination of an Indian University, provided that he/she has passed the B.Sc. examination with not less than two of the following subjects: Physics, Chemistry, Biology (Botany, Zoology) provided that candidate has passed subjects of English, Physics, Chemistry and Biology individually in the qualifying examinations mentioned in clauses (i) (ii) and (iii).

Note: Candidates who have passed "Physical Science" instead of Physics and Chemistry as two separate subjects are not eligible for admission to MBBS course as per Medical Council of India Regulations vide letter MCI-37(2)/2001/Med.922 dated 14.02.2001

1.2 Marks

The selection of students shall be based on merit provided that:

a) In case of admission on the basis of qualifying examination, a candidate for admission to MBBS course must have passed individually in the subjects of Physics, Chemistry, Biology and English and must have obtained not less than 50% marks for general category,40% for SC,ST and OBC students taken together in Physics, Chemistry and Biology in the qualifying examination.

The minimum marks shall not be less than 45% taken together in Physics, Chemistry and Biology for physically handicapped candidates with lower limb locomotor disability of 40 to 70%.

b) The student shall appear for All India National Eligibility cum Entrance Test [NEET] and must qualify securing valid rank.

1.3 Age: The candidate should have completed 17 years of age on or before 31st day of December of the year of admission.

Eligibility criteria for admission to the MBBS Course shall be as per Graduate Medical Education regulations of Medical Council of India and its amendments there of existing at the time of admission.

PHASE WISE TRAINING AND TIME DISTRIBUTION FOR PROFESSIONAL DEVELOPMENT

The Competency based Undergraduate Curriculum and Attitude, Ethics and Communication (AETCOM) course, as published by the Medical Council of India and also made available on the Council's website, shall be the curriculum for the batches admitted in MBBS from the academic year 2019-20 onwards.

Provided that in respect of batches admitted prior to the academic year 2019-20, the governing provisions shall remain as contained in the Part I of these Regulations.

7. **Training period and time distribution**:

7.1. Every learner shall undergo a period of certified study extending over 4 ½ academic years, divided into nine semesters from the date of commencement of course to the date of completion of examination which shall be followed by one year of compulsory rotating internship.

7.2. Each academic year will have at least 240 teaching days with a minimum of eight hours of working on each day including one hour as lunch break.

7.3. Teaching and learning shall be aligned and integrated across specialties both vertically and horizontally for better learner comprehension. Learner centered learning methods should include problem oriented learning, case studies, community oriented learning, self- directed and experiential learning.

7.4. The period of 4 ½ years is divided as follows:

7.4.1 Pre-Clinical Phase [(Phase I) - First Professional phase of 13 months preceded by Foundation Course of one month]: will consist of preclinical subjects – Human Anatomy, Physiology, Biochemistry, Introduction to Community Medicine, Humanities, Professional development including Attitude, Ethics & Communication (AETCOM) module and early clinical exposure, ensuring both horizontal and vertical integration.

7.4.2 Para-clinical phase [(Phase II) - Second Professional (12 months)]: will consist of Para-clinical subjects namely Pathology, Pharmacology, Microbiology, Community Medicine, Forensic Medicine and Toxicology, Professional development including Attitude, Ethics & Communication (AETCOM) module and introduction to clinical subjects ensuring both horizontal and vertical integration.

The clinical exposure to learners will be in the form of learner-doctor method of clinical training in all phases. The emphasis will be on primary, preventive and comprehensive health care. A part of train 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:

(a) Experience in recognizing and managing common problems seen in outpatient, inpatient and emergency settings,

(b) Involvement in patient care as a team member,

(c) Involvement in patient management and performance of basic procedures.

7.4.3 Clinical Phase – [(Phase III) Third Professional (28 months)]

(a) Part I (13 months) - The clinical subjects include General Medicine, General Surgery, Obstetrics & Gynecology, Pediatrics, Orthopaedics, Dermatology, Otorhinolaryngology, Ophthalmology, Community Medicine, Forensic Medicine and Toxicology, Psychiatry, Respiratory Medicine, Radio diagnosis & Radiotherapy and Anaesthesiology & Professional development including AETCOM module.

(b) Electives (2 months):

To provide learners with opportunity for diverse learning experiences, to do research/community projects that will stimulate enquiry, self directed experimental learning and lateral thinking [9.3].

(c) Part II (13 months) - Clinical subjects include:

i. Medicine and allied specialties (General Medicine, Psychiatry, Dermatology Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis)

ii. Surgery and allied specialties (General Surgery, Orthopedics [including trauma]), Dentistry, Physical Medicine and rehabilitation, Anaesthesiology and Radiodiagnosis)

iii. Obstetrics and Gynecology (including Family Welfare)

iv. Pediatrics

v. AETCOM module

7.5 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.

7.6 Universities shall organize admission timing and admission process in such a way that teaching in the first Professional year commences with induction through the Foundation Course by the 1st of August of each year.

(i) 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.

(ii) A learner shall not be entitled to graduate later than ten (10) years of her/his joining the first MBBS course.

7.7 No more than four attempts shall be allowed for a candidate to pass the first Professional examination. The total period for successful completion of first Professional course shall not exceed four (4) years. Partial attendance of examination in any subject shall be counted as an attempt.

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

7.9 Passing in third Professional (Part I) examination is not compulsory before starting part II training; however, passing of third Professional (Part I) is compulsory for being eligible for third Professional (Part II) examination.

7.10 During para-clinical and clinical phases, including prescribed 2 months of electives, clinical post postings of three hours duration daily as specified in Tables 5, 6, 7 and 8 would apply for various departments.

8. Phase distribution and timing of examination

8.1 Time distribution of the MBBS programme is given in Table 1.n

8.2 Distribution of subjects by Professional Phase-wise is given in Table 2.

8.3 Minimum teaching hours prescribed in various disciplines are as under Tables 3-7.

8.4 Distribution of clinical postings is given in Table 8.

8.5 Duration of clinical postings will be:

8.5.1 Second Professional: 36 weeks of clinical posting (Three hours per day - five days per week: Total 540 hours)

8.5.2 Third Professional part I: 42 weeks of clinical posting (Three hours per day - six days per week: Total 756 hours)

8.5.3 Third Professional part II: 44 weeks of clinical posting (Three hours per day - six days per week: Total 792 hours)

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

8.7 Second professional clinical postings shall commence before / after declaration of results of the first professional phase examinations, as decided by the institution/ University. Third Professional parts I and part II clinical postings shall start no later than two weeks after the completion of the previous professional examination.

8.8 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.

DURATION OF THE COURSE

i) Every student shall undergo a period of certified study extending over $4^1/_2$ Academic years from the date of commencement of this study for the subject comprising the medical curriculum to the date of completion of the examination followed by one year compulsory rotating Internship.
The $4^1/_2$ years course has been divided into three Phases.

Table 1: Time distribution of MBBS Programme & Examination Schedule

<table>
<tr><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Foundation Course</td><td colspan="4">I MBBS</td></tr>
<tr><td colspan="8">I MBBS</td><td>Exam I MBBS</td><td colspan="3">II MBBS</td></tr>
<tr><td colspan="8">II MBBS</td><td>Exam II MBBS</td><td colspan="3">III MBBS</td></tr>
<tr><td colspan="9">III MBBS Part I</td><td>Exam III MBBS Part I</td><td colspan="2">Electives & Skills</td></tr>
<tr><td colspan="12">III MBBS Part II</td></tr>
<tr><td>Exam III MBBS Part II</td><td></td><td colspan="10">Internship</td></tr>
<tr><td colspan="2">Internship</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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One month is provided at the end of every professional year for completion of examination and declaration of results.

Distribution of the duration of various components of the MBBS Course

TABLE 2 DISTRIBUTION OF SUBJECTS PROFESSIONAL PHASEWISE HERE

Table 2: Distribution of subjects by professional phase

Phase & Year Of MBBB Training	Subjects & New Teaching Elements	Duration	University Examination
First professional MBBS	• Foundation course (1month) • Human Anatomy, Physiology& Biochemistry Introduction of Community Medicine ,Humanities • Early Clinical Exposure • Attitude. Ethics and Communication Module (AETCOM)	1+13 months	I Professional
Second Professional MBBS	• Pathology, Microbiology, Pharmacology, Forensic Medicine And Toxicology • Introduction to clinical subjects including community Medicine • Clinical postings • AETCOM	12 months	II Professional
Third Professional MBBS Part I	• General Medicine, General Surgery, OBG. Pediatrics, Orthopaedics,Dermatology,PyschiatryOtorhinolaryngology,Ophthalmology,community Medicine ,Forensic Medicine and Toxicology, Respiratory Medicine, Radio diagnosis & Radiotherapy, Anaesthesiology • Clinical Subjects /postings • AETCOM	12 months	III Professional (Part1)
Electives	* Electives ,skills and assessment	2 months	
Third Professional MBBS Part II	* General Medicine, Pediatrics, General Surgery, Orthopaedics, Obstetrics and Gynecology including Family welfare and allied specialties * Clinical Postings /subjects * AETCOM	13 months	III Professional (Part II)

*Assessment of electives shall be included in Internal Assessment

ATTENDANCE &ELIGIBILTY TO APPEAR FOR UNIVERSITY PROFESSIONAL EXAMINATION

[Based on the GMR 2019 Regulations 2019 clause no11.I &its sub causes page no's 82-83]

Eligibility to appear for Professional examinations

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

(a) Attendance 1. 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.

2. If an examination comprises more than one subject (for e.g., General Surgery and allied branches), the candidate must have 75% attendance in each subject and 80% attendance in each clinical posting.

3. Learners who do not have at least 75% attendance in the electives will not be eligible for the Third Professional - Part II examination.

(b) 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 care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

1. Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Para-clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.
2. When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
3. 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.
4. The final internal assessment in a broad clinical specialty (e.g., Surgery and allied specialties etc.) shall comprise of marks from all the constituent specialties. The proportion of the marks for each constituent specialty shall be determined by the time of instruction allotted to each.

5. 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.
6. The results of internal assessment should be displayed on the notice board with in a 1-2 weeks of the test. Universities shall guide the colleges 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.
7. 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.

   The Principal should notify at the college the attendance details at the end of the each term without fail under intimation to this University. The candidate lacking in the prescribed attendance and progress in any subject(s) in theory or practical/clinical in the first appearance should not be permitted to appear for the examination in that subject(s).

New teaching / learning elements

9.1. Foundation Course

9.1.1 Goal: The goal of the Foundation Course is to prepare a learner to study medicine effectively. It will be of one month duration after admission.

9.1.2 Objectives: The objectives are to: (a) Orient the learner to: (i) The medical profession and the physician's role in society (ii) The MBBS programme (iii) Alternate health systems in the country and history of medicine (iv) Medical ethics, attitudes and professionalism (v) Health care system and its delivery (vi) National health programmes and policies (vii) Universal precautions and vaccinations (viii) Patient safety and biohazard safety (ix) Principles of primary care (general and community based care) (x) The academic ambience

(b) Enable the learner to acquire enhanced skills in: (i) Language (ii) Interpersonal relationships (iii) Communication (iv) Learning including self-directed learning (v) Time management (vi) Stress management (vii) Use of information technology

(c) Train the learner to provide: (i) First-aid (ii) Basic life support

9.1.3 In addition to the above, learners may be enrolled in one of the following programmes which will be run concurrently: (a) Local language programme (b) English language programme (c) Computer skills (d) These may be done in the last two hours of the day for the duration of the Foundation Course.

9.1.4 These sessions must be as interactive as possible.

9.1.5 Sports (to be used through the Foundation Course as protected 04 hours / week).

9.1.6 Leisure and extracurricular activity (to be used through the Foundation Course as protected 02 hours per week)

9.1.7 Institutions shall develop learning modules and identify the appropriate resource persons for their delivery.

9.1.8 The time committed for the Foundation Course may not be used for any other curricular activity.

9.1.9 The Foundation Course will have compulsory 75% attendance. This will be certified by the Dean of the college.

9.1.10 The Foundation Course will be organized by the Coordinator appointed by the Dean of the college and will be under supervision of the heads of the preclinical departments.

9.1.11 Every college must arrange for a meeting with parents and their wards.

9.2. Early Clinical Exposure

9.2.1 Objectives: The objectives of early clinical exposure of the first-year medical learners are to enable the learner to: (a) Recognize the relevance of basic sciences in diagnosis, patient care and treatment, (b) Provide a context that will enhance basic science learning, (c) Relate to experience of patients as a motivation to learn, (d) Recognize attitude, ethics and professionalism as integral to the doctor-patient relationship, (e) Understand the socio-cultural context of disease through the study of humanities.

9.2.2 Elements

(a) Basic science correlation: i.e. apply and correlate principles of basic sciences as they relate to the care of the patient (this will be part of integrated modules).

(b) Clinical skills: to include basic skills in interviewing patients, doctor-patient communication, ethics and professionalism, critical thinking and analysis and self-learning (this training will be imparted in the time allotted for early clinical exposure).

(c) Humanities: To introduce learners to a broader understanding of the socio-economic framework and cultural context within which health is delivered through the study of humanities and social sciences.

9.3. Electives

9.3.1 Objectives: To provide the learner with opportunities: (a) For diverse learning experiences, (b) To do research/community projects that will stimulate enquiry, self-directed, experiential learning and lateral thinking.

9.3.2 Two months are designated for elective rotations after completion of the examination at end of the third MBBS Part I and before commencement of third MBBS Part II.

9.3.3 It is mandatory for learners to do an elective. The elective time should not be used to make up for missed clinical postings, shortage of attendance or other purposes.

9.3.4 Structure (a) The learner shall rotate through two elective blocks of 04 weeks each. (b) Block 1 shall be done in a pre-selected preclinical or para-clinical or other basic sciences laboratory OR under a researcher in an ongoing research project. During the electives regular clinical postings shall continue. (c) Block 2 shall be done in a clinical department (including specialties, super-specialties, ICUs, blood bank and casualty) from a list of electives developed and available in the institution. OR as a supervised learning experience at a rural or urban community clinic. (d) Institutions will pre-determine the number and nature of electives, names of the supervisors, and the number of learners in each elective based on the local conditions, available resources and faculty.

9.3.5 Each institution will develop its own mechanism for allocation of electives.

9.3.6 It is preferable that elective choices are made available to the learners in the beginning of the academic year.

9.3.7 The learner must submit a learning log book based on both blocks of the elective.

9.3.8 75% attendance in the electives and submission of log book maintained during elective is required for eligibility to appear in the final MBBS examination.

9.3.9 Institutions may use part of this time for strengthening basic skill certification.

9.4. Professional Development including Attitude, Ethics and Communication Module (AETCOM)

9.4.1 Objectives of the programme: At the end of the programme, the learner must demonstrate ability to: (a) understand and apply principles of bioethics and law as they apply to medical practice and research understand and apply the principles of clinical reasoning as they apply to the care of the patients, (b) understand and apply the principles of system based care as they relate to the care of the patient, (c) understand and apply empathy and other human values to the care of the patient, (d) communicate effectively with patients, families, colleagues and other health care professionals, (e) understand the strengths and limitations of alternative systems of medicine, (f) respond to events and issues in a professional, considerate and humane fashion, (g) translate learning from the humanities in order to further his / her professional and personal growth.

9.4.2 Learning experiences: (a) This will be a longitudinal programme spread across the continuum of the MBBS programme including internship, (b) Learning experiences may include – small group discussions, patient care scenarios, workshop, seminars, role plays, lectures etc. (c) Attitude, Ethics &Communication Module (AETCOM module) developed by Medical Council of India should be used longitudinally for purposes of instruction.

9.4.3 75% attendance in Professional Development Programme (AETCOM Module) is required for eligibility to appear for final examination in each professional year.

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

9.4.5 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.

9.4.6 Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and viva voce.

9.5. Learner-doctor method of clinical training (Clinical Clerkship)

9.5.1 Goal: To provide learners with experience in: (a) Longitudinal patient care, (b) Being part of the health care team, (c) Hands-on care of patients in outpatient and inpatient setting.

9.5.2 Structure:

(a) The first clinical posting in second professional shall orient learners to the patient, their roles and the specialty.

(b) The learner-doctor programme will progress as outlined in Table 9.

(c) The learner will function as a part of the health care team with the following responsibilities: (i) Be part of the unit's outpatient services on admission days, (ii) Remain with the admission unit until 6 PM except during designated class hours, (iii) Be assigned patients admitted during each admission day for whom he/she will undertake responsibility, under the supervision of a senior resident or faculty member, (iv) Participate in the unit rounds on its admission day and will present the assigned patients to the supervising physician, (v) Follow the patient's progress throughout the hospital stay until discharge, (vi) Participate, under supervision, in procedures, surgeries, deliveries etc. of assigned patients (according to responsibilities outlined in table 9), (vii) Participate in unit rounds on at least one other day of the week excluding the admission day, (viii) Discuss ethical and other humanitarian issues during unit rounds, (ix) Attend all scheduled classes and educational activities, (x) Document his/her observations in a prescribed log book / case record.

(d) No learner will be given independent charge of the patient

(e) The supervising physician will be responsible for all patient care decisions

9.5.3 Assessment:

(a) A designated faculty member in each unit will coordinate and facilitate the activities of the learner, monitor progress, provide feedback and review the log book/ case record.

(b) The log book/ case record must include the written case record prepared by the learner including relevant investigations, treatment and its rationale, hospital course, family and patient discussions, discharge summary etc.

(c) The log book should also include records of outpatients assigned. Submission of the log book/ case record to the department is required for eligibility to appear for the final examination

Integration and Alignment in teaching and learning:

As per the new curriculum to ensure that the learner attains the broad outcomes of Integration & Alignment in the curriculum, teaching topics that are similar together reducing redundancy and allowing the learner to integrate the concept will be done under Integration and Aligning the teaching of subject material that occurs under a particular organ system/ disease concept from the same phase in the same time frame i.e, temporal coordination shall be done in respective subjects.

Sharing of topics or correlation of topics by using an integration or linker session shall be in a small proportion - not to exceed 20% of the total curriculum .The integration session preferably will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year .

The above content is sited from Curriculum Implementation Support Program of the Competency Based Undergraduate Medical Education Curriculum, 2019, Relevant Extract from GMR, pp65-66

Details of the course contents, schedule of Teaching –Learning, hours allotted for subjects etc are as follows:

TABLE: 3 Foundation course

Subjects / Contents	Teaching hours	Self directed learning (hours)	Total hours
Orientation [1]	30	0	30
Skills module [2]	35	0	35
Field visit to community health centre	8	0	8
Introduction to professional development & AETCOM module	-	-	10
Sports and extracurricular activities	22	0	22
Enhancement of language / Computer skills [3]	50	0	50
	-	-	155

1. Orientation course will be completed as single block in the first week and will contain elements outlined in 9.1.
2. Skills modules will contain elements outline in 9.1.

3. Based on perceived need of learners, one may choose language enhancement (English or local spoken or both) and computer skills. This should be provided longitudinally through the duration of the foundation course.
4. Teaching of foundation course will be organized by preclinical departments.

Table: 4 First Professional teaching hours

Subjects	Lecture hours	Small group teaching / tutorials / integrated learning/ practical (hours)	Self directed learning (hours)	Total (hours)
Human anatomy	220	415	40	675
Physiology *	160	310	25	495
Biochemistry	80	150	20	250
Early clinical exposure	90	-	0	90
Community Medicine **	20	27	5	52
Attitude, Ethics & Communication module (AETCOM)***	-	26	8	34
Sports and extracurricular activities	-	-	-	60
Formative assessment and term examinations	-	-	-	80
Total	-	-	-	1736

*Including Molecular biology
**Early clinical exposure hours to be divided equally in all three subjects
***AETCOM module shall be a longitudinal programme

Table: 5 Second professional teaching hours

Subjects	Lecture hours	Small group teaching / tutorials / integrated learning / practical (hours)	Clinical Postings	Self directed learning (hours)	Total (hours)
Pathology	80	138	-	12	230
Pharmacology	80	138	-	12	230
Microbiology	70	110	-	10	190
Community Medicine	20	30	-	10	60
Forensic Medicine and Toxicology	15	30	-	5	50
Clinical Subjects	75**	-	540***		615
Attitude, Ethics & Communication module (AETCOM)***	-	29	-	8	37
Sports and extracurricular activities	-	-	-	28	25
Total	-	-	-	-	1440

At least 3 hours of clinical instruction each week must be allotted to training in clinical and procedural skill laboratories hours maybe distributed weekly or as a block in each posting based on institutional logistics.

**25 hours each for General Medicine, General Surgery and Obstetrics &Gynecology

***The clinical postings in the second professional shall be 15 hours per week (3 hrs per day from Monday to Friday).

Table 6: Third Professional part I teaching hours

Subjects	Lecture hours	Small group teaching / tutorials / integrated learning / practical (hours)	Self directed learning (hours)	Total (hours)
General Medicine	25	35	5	65
General Surgery	25	35	5	65
OBG	25	35	5	65
Pediatrics	20	30	5	55
Orthopedics	15	20	5	40
Forensic Medicine & 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	5	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
Total	303	401	66	1551

*The clinical postings in the third professional part 1 shall be 18 hours per week (3hrs per day from Monday to Saturday).

Table 7: Third Professional Part II teaching hours

Subjects	Lecture hours	Small group teaching / tutorials / integrated learning / practical (hours)	Self directed learning (hours)	Total (hours)
General Medicine	70	125	15	210
General Surgery	70	125	15	210
OBG	70	125	15	210
Pediatrics	20	35	10	65
Orthopedics	20	25	5	50
Clinical Postings *				792
Attitude, Ethics & Communication module (AETCOM)	28		16	43
Electives				200
Total	250	435	60	1780

*25% of allotted time of third professional shall be utilized for integrated learning with pre- and para clinical subjects and shall be assessed during the clinical subjects examination. This allotted time will be utilized as integrated teaching by para clinical subjects with clinical subjects (as clinical pathology, clinical pharmacology and Clinical microbiology)

**the clinical postings in the third professional Part II shall be 18 hours per week (3hrs per day from Monday to Saturday)

***hours from clinical postings can also be used for AETCOM modules

Table 8: Clinical postings

Subjects	**Period of training in weeks**			
	II MBBS	**III MBBS part I**	**III MBBS Part II**	**Total Weeks**
Electives	-	-	8*(4 regular clinical posting)	4
General Medicine [1]	4	4	8+4	20
General Surgery	4	4	8+4	20
OBG [2]	4	4	8+4	20
Pediatrics	2	4	4	10
Community Medicine	4	6	-	10
Orthopedics – Including Trauma[3]	2	4	2	8
Otorhinolaryngology	4	4	-	8
Ophthalmology	4	4	-	8
Respiratory Medicine	2	-	-	2
Psychiatry	2	2	-	4
Radio diagnosis[4]	2	-	-	2
Dermatology, Venereology & Leprosy	2	2	2	6
Dentistry & Anaesthesia	-	2	-	2
Casualty	-	2	-	2
	36	42	48	126

*In four of the eight weeks of electives, regular clinical postings shall be accommodated.

Clinical postings may be adjusted within the time framework.

[1]This posting includes laboratory medicine (para-clinical) & infections diseases (phase III part I).

[2]This includes maternity training and family welfare (including family planning).

[3]This posting includes physical medicine and rehabilitation.

[4]This posting includes radiotherapy, wherever available.

Table 9: Learner – Doctor programme (clinical clerkship)

Year of Curriculum	Focus of learner – doctor programme
Year 1	Introduction to hospital environment. Early clinical exposure. Understanding perspectives of illness
Year 2	History taking, Physical examination. Assessment of change in clinical status, communication and patient education
Year 3	All of the above and choice of investigations, basic procedures and continuity of care
Year 4	All of the above and decision making, management and outcomes

Scheme of Examination

Internal Assessment

It shall be based on day today assessments, evaluation of assignment, presentation of seminar, clinical a Clinical presentation, problem solving exercises participation in project for health care in the community, proficiency in carrying out small research project tests etc. Regular periodic examinations should be conducted throughout the course. Although the question of number of examinations left to the institution, there should be a minimum of at least three (3) sessional examinations during the course. One of these tests can be in the form of MCQS. One of the practical/clinical examinations can be in the form of OSPE/OSCE. Average of best two examination marks should be taken into consideration while calculating the marks of the internal assessment.

1. There shall be no less than three internal assessment examinations in each Preclinical / Para clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.
2. In subjects that are taught at more than one phase, proportionate weightage must be given for internal assessment for each Phase. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.

Components of IA

i) Theory IA can include: theory tests, send ups, seminars, quizzes, interest in subject, scientific attitude etc. Written tests should have short notes and creative writing experiences.

ii) Practical/Clinical IA can include: practical/clinical tests, Objective Structured Clinical Examination (OSCE)/Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), Mini Clinical Evaluation

iii) Exercise (mini-CEX), records maintenance and attitudinal assessment.

This content is cited from: Medical Council of India. Competency Based Assessment Module for Undergraduate Medical Education Training program, 2019: pp 10-12

Day to day records and log book including certification of required skills should be given importance in internal assessment. Internal assessment should be based on competencies and skills.

The final internal assessment in a broad clinical specialty (e.g., Surgery and allied specialties etc.) shall comprise of marks from all the constituent specialties. The proportion of the marks for each constituent specialty shall be determined by the time of instruction allotted to each.

Learners must secure at least 50% marks of the total marks (combined in theory and practicals / clinicals) ;not less than 40%marks in theory and practical/clinical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing final University Examinations of that subject declared successful at the final University examination of that subject. The learner should be made aware of the results of Internal Assessment. The college has to build its own mechanism and the calendar of the college should show the details regarding conduct of Internal assessment. Internal assessment marks will reflect as separate head of passing at the summative examination.

This content is based on the MCI Document. GMR 2019 page 83 11.1.1b5

The results of internal assessment should be displayed on the notice board with in a 1-2 weeks of the test. Universities shall guide the colleges 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.

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. GMR 2019 Page 83 11.1.1b 6 & 7. Proper record of the work should be maintained, which will be the basis of internal assessment of all students and should be available for scrutiny.

Weightage for internal assessment shall be 20% of total marks in the subject. A student must secure at least 35% of total marks fixed for internal assessment in a particular subject in order to be eligible to appear in the University Examination of that

subject. *(Vide Medical Council of India Notification on Graduate Medical Education (Amendment.) Regulations 2003, published in the Gazette of India Part III, Section 4. Extraordinary issued on 15th October 2003.)*

Suggested pattern f the Internal Assessment shall be based on the directives received from MCI Competency Based Assessment Module for Undergraduate Medical Education Training Program, 2019.

Phase	Minimum Number of tests during the year	Remarks
1st	Human Anatomy 3, Physiology 3, Biochemistry 3, Community Medicine 1	ECE assessment should be included subject-wise There should be at least one short question from AETCOM in each subject One of the 3 tests in preclinical subjects should be prelim or pre-university examination.
2nd	Pathology 3, Pharmacology 3, Microbiology 3, **Two tests for-** General Medicine (Including Psychiatry, Dermatology, Venereology & Leprosy (DVL) and Respiratory Medicine including Tuberculosis), General Surgery (Including Orthopaedics, Dentistry, Anaesthesiology and Radio diagnosis), Obstetrics& Gynecology, Forensic Medicine & Toxicology and Community Medicine End of posting (EOP) examination at each clinical posting including those of allied subjects	• Clinical subjects should also be assessed at end of each posting (EOP) – Theory and Practical • There should be at least one short question from AETCOM in each subject • One of the 3 tests in Para clinical subjects should be prelim or pre-university examination.
3rd	Forensic Medicine & Toxicology 2, Community Medicine 2 Ophthalmology 2, Otorhinolaryngology 2, **Two tests for-** General Medicine (Including Psychiatry, Dermatology, Venereology & Leprosy (DVL) and Respiratory Medicine including Tuberculosis), General Surgery (Including Orthopaedics, Anaesthesiology and Radio diagnosis), Pediatrics, Obstetrics & Gynecology EOP examination at each clinical posting including allied subjects	• Clinical subjects should also be tested at end of each posting (EOP)-Theory and Practical • There should be at least one short question from AETCOM in each subject • One of the tests in Ophthalmology, Otorhinolaryngology /Forensic Medicine &Toxicology/ Community Medicine should be prelim or pre-university examination

4th	**Two Tests for-** General Medicine (Including Psychiatry, Dermatology, Venereology & Leprosy (DVL) and Respiratory Medicine including Tuberculosis),General Surgery (Including Orthopaedics, Anaesthesiology and Radio diagnosis), Pediatrics, Obstetrics & Gynecology EOP examination at each clinical posting including that in allied subjects	• Clinical subjects should also be tested at end of each posting (EOP) - Theory and Practical • There should be at least one short question from AETCOM in each subject • One of the tests in Medicine, Surgery, Pediatrics and Obstetrics & Gynecology should be prelim or pre university examination • Assessment of electives to be included in IA

This content is cited from: Medical Council of India. Competency Based Assessment Module for Undergraduate Medical Education Training program, 2019: Annexure I pp 24-25

Internal assessment conduction should involve all the faculty members of the department including Senior Residents. .Competency based Assessment requires focus on learning process and outcomes including psychomotor, communication and affective domains. Involvement of all the teaching faculty and Senior Residents helps in building ownership of teaching –learning methods and assessment as well.

Designing of IA needs adequate planning and blue printing to include all the domains of competency.

The IA of broader specialties should also include marks from all the allied specialties e.g. General Medicine should include marks of Psychiatry, Dermatology, Venereology & Leprosy and Respiratory Medicine including tuberculosis etc. while General Surgery should include Orthopaedics, Dentistry, Anaesthesiology and Radio-diagnosis etc, so that students do not ignore these postings. The proportion of the marks for each allied specialty shall be proportionate to the time of instruction allotted to each postings. When subjects are taught in more than one phase - the assessment must be done in each phase and must contribute proportionally to final internal assessment.

Assessment of Foundation Course should be included in formative assessment of first phase. Assessment of Early Clinical Exposure should be included in formative as well as in internal

assessment in first phase subject-wise. Assessment of electives should contribute to internal assessment in final phase part-II.

There should be at least one assessment based on direct observation of skills, attitudes and communication at all levels. Communication and attitudinal assessment should also be built in all assessments as far as possible**.** A log book must be used to record these components.

Feedback in IA

Feedback should be provided to students throughout the course so that they are aware of their performance and remedial action can be initiated well in time. The feedbacks need to be structured and the faculty and students must be sensitized to giving and receiving feedback.
The results of IA should be displayed on notice board within 2 weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better. Universities should guide the colleges 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(s).

It is also recommended that students should sign with date whenever they are shown IA records in token of having seen and discussed the marks**. Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.**

Record keeping

The peculiarities of CBA, particularly its longitudinal nature and its use as a measure of progression, require a good record keeping. Such records can vary from manual to electronic. In whatever form they are used, the essential features should include regularity, availability to the students and a documentation of discussion of results (present status, feedback and suggestions for improvement) between the student and the teacher(s). Many aspects can be covered in a group feedback while some will require one to one discussion. The formats for use in Indian settings have been published and can be suitably modified for local use.

This content is cited from: Medical Council of India. Competency Based Assessment Module for Undergraduate Medical Education Training program, 2019: pp 10-14

A candidate who has not secured requisite aggregate in the internal assessment may be provisionally permitted to appear for university examination. However, he/she has to

successfully complete the remediation measures prescribed by the institution/ university as the case may be, prior to the declaration of his/her results in that particular phase. Failure to meet prescribed 50% marks in Internal assessment after availing remedial measures will lead to annulment of the results of the candidate in that particular subject (s) in the university examination.

This content is based on the MCI Document, **Curriculum Implementation Support Program of the Competency Based Undergraduate Medical Education Curriculum 2019, extract of the Salient features of Graduate Medical Education Regulations 2019, page number** 88-91.

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 care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

1. Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Para clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.
2. In subjects that are taught at more than one phase, proportionate weightage must be given for internal assessment for each Phase. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
3. Day to day records and log book should be given importance in internal assessment. Internal assessment should be based on competencies and skills. Learners must secure at least 50% marks of the total marks (combined in theory and practicals / clinicals) assigned for internal assessment in a particular subject in order to be declared successful at the final University examination of that subject. The learner should be made aware of the results of Internal Assessment. Each college can build its own mechanism and the calendar of the college should show the details regarding conduct of Internal assessment. Internal assessment marks will reflect as separate head of passing at the summative examination.

4. A candidate who has not secured requisite aggregate in the internal assessment may be provisionally permitted to appear for university examination. However, he/she has to successfully complete the remediation measures prescribed by the institution university as the case may be, prior to the declaration of his/her results in that particular phase. Failure to meet prescribed 50% marks in Internal assessment after availing remedial measures will lead to annulment of the results of the candidate in that particular subject (s) in the university examination.

UNIVERSITY EXAMINATIONS (As per GMER 2019 clause no 11.2 and its sub clauses pages 83-84)

11.2.1 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.

11.2.2 Nature of questions will include different types such as structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part should be indicated separately. MCQs shall be accorded a weightage of not more than 20% of the total theory marks. 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.

11.2.3 Practical/clinical examinations will be conducted in the laboratories or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion. 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.

11.2.4 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.

11.2.5 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.

11.2.6 A learner shall not be entitled to graduate after 10 years of his/her joining of the first part of the MBBS course.

11.2.7 University Examinations shall be held as under:

(a) First Professional

1. The first Professional examination shall be held at the end of first Professional training (1+12 months), in the subjects of Human Anatomy, Physiology and Biochemistry.
2. A maximum number of four permissible attempts would be available to clear the first Professional University examination, whereby the first Professional course will have to be cleared within 4 years of admission to the said course. Partial attendance at any University examination shall be counted as an availed attempt.

(b) Second Professional

1. The second Professional examination shall be held at the end of second professional training (11 months), in the subjects of Pathology, Microbiology, and Pharmacology.

(c) Third Professional

1. Third Professional Part I shall be held at end of third Professional part 1 of training (12 months) in the subjects of Ophthalmology, Otorhinolaryngology, Community Medicine and Forensic Medicine and Toxicology
2. Third Professional Part II - (Final Professional) examination shall be at the end of training (14 months including 2 months of electives) in the subjects of General Medicine, General Surgery, Obstetrics & Gynecology and Pediatrics. The discipline of Orthopaedics, Anaesthesiology, Dentistry and Radio diagnosis will constitute 25% of the total theory marks incorporated as a separate section in paper II of General Surgery.
3. The discipline of Psychiatry and Dermatology, Venereology and Leprosy(DVL), Respiratory Medicine including Tuberculosis will constitute 25% of the total theory marks in General Medicine incorporated as a separate section in paper II of General Medicine

Phase of Course	Written- Theory – Total	Practicals/ Orals/ Clinicals	Pass Criteria
First Professional			Internal Assessment: **50%** separately in theory and practical for eligibility to appear for University Examinations University Examination Mandatory 50% marks in theory and practical (practical = practical/ clinical + viva)
Human Anatomy - 2 papers	200	100	
Physiology - 2 papers	200	100	
Biochemistry - 2 papers	200	100	
Second Professional			
Pharmacology - 2 Papers	200	100	
Pathology - 2 papers	200	100	
Microbiology - 2 papers	200	100	
Third Professional Part – I			
Forensic Medicine & Toxicology - 1 paper	100	100	
Ophthalmology – 1 paper	100	100	
Otorhinolaryngology – 1 paper	100	100	
Community Medicine - 2 papers	200	100	
Third Professional Part – II			
General Medicine - 2 papers	200	200	
General Surgery - 2 papers	200	200	
Pediatrics – 1 paper	100	100	
Obstetrics & Gynaecology - 2 papers	200	200	

Chart depicting the breakup of marks for the University Examinations, Minimum marks to be obtained in Internal Assessment and pass criteria table no 10 page 84 of GMR 2019

Note: At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

Criteria for passing in a subject:

[As per clause 11.2.8 GMR 2019 page 85]

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.

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.

University Examination - Subjects and Marks

Suggested theory marks distribution based on CISP booklet page no: 91

	Pathology	**Pharmacology**	**Microbiology**
Theory Marks			
Paper I	100	100	100
Paper II	100	100	100
Total Theory Marks University Exam	**200**	**200**	**200**
Practicals + Viva-voce			
Practicals	80	80	80
Viva Voce	20	20	20
Total Practical + Viva University Exam	**100**	**100**	**100**
Internal assessment			
Theory	40	40	40
Practical + Viva-Voce	20	20	20
Total	**60**	**60**	**60**

Question paper pattern as suggested by CBME batches:

For paper I

Type of Questions	**Number of questions**	**Marks for each question**	**Total marks**
MCQS	20	1 (ONE)	20
Essay type questions	2	10	20
Short Essay types questions	6	5	30
Short Answers	10	3	30
Total			**100**

For paper II

Type of Questions	**Number of questions**	**Marks for each question**	**Total marks**
MCQs	20	01	20
Long Essay type questions	2	10	20
Short Essay types questions	6	5	30
Short Answer questions	10	3	30
Total			100

8. SUBMISSION OF LABORATORY RECORD NOTE BOOK

Each candidate shall submit to the Examiners his/her laboratory notebook duly certified by the Head of the Department as a bonafide record of the work done by the candidate at the time of Practical/Clinical Examination.

The candidate may be permitted by the examiners to refer the practical record book during the Practical Examination in the subject of Biochemistry only. No other material, handwritten, cyclostyled or printed guides are allowed for reference during the practical examination.

After fulfilling the requisite criteria in Internal Assessment and Attendance, the candidate, must obtain 50% marks in aggregate with a minimum of 50% marks in Theory minimum of 50% marks in Practical / Clinical + viva voce separately in each of the subjects. In subjects having two theory papers the candidate should secure minimum 40% of marks and 50% together to be declared as pass.

A candidate not securing 50% marks in aggregate in Theory or Practical/Clinical examination in a subject shall be declared to have failed in that subject and is required to appear for both theory and Practical/Clinical again in the subsequent examination in that subject.

10. DECLARATION OF CLASS:

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

c) A candidate having appeared in all the subjects in the same examination and passed 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) A candidate passing the university 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 clauses (a), (b) and (c)]

11. MIGRATION

a) Migration from one medical college another is not a right of a student. However, migration of students from one medical college to another medical college in India may be considered by Medical Council of India, only in exceptional cases on extreme compassionate grounds, provided following criteria are fulfilled. Routine migrations on other grounds shall not be allowed.

b) Both the colleges, i.e., one at which the student is studying at present and one to which migration is sought, should have been recognized by the Medical Council of India.

c) The applicant candidate should have passed first professional MBBS examination.

d) The applicant candidate should submit his/her application for migration complete in all respects, to all authorities concerned within a period of one month of passing (declaration of results) the first professional Bachelor of Medicine and Bachelor of Surgery (MBBS) examination.

e) The applicant candidate must submit an affidavit stating that he/she will pursue 18 months of prescribed study before appearing for II professional MBBS examination at the transferee medical college, which should be duly certified by the Registrar of the concerned University in which he/she is seeking transfer. The transfer will be applicable only after receipt of the affidavit.

NOTE I:

i. Migration during clinical course of study shall not be allowed on any ground.

ii. All applications for migration shall be referred to Medical Council of India by college authorities. No Institution/University shall allow migration directly without the approval of the Council.

iii. Council reserves the right, not to entertain any application which is not under the prescribed compassionate grounds and also to take independent decision where applicant has been allowed to migrate without referring the same to the Council.

NOTE II: * Compassionate grounds criteria:

i. Death of a supporting parent or guardian

ii. Illness of the candidate causing disability

iii. Disturbed conditions as declared by Government in the Medical College area.

Only candidates who pass in all the Phase I (Pre Clinical) subjects shall be eligible to join the Phase II of the course.

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

Passing in third Professional (Part I) examination is not compulsory before starting part II training; however, passing of third Professional (Part I) is compulsory for being eligible for third Professional (Part II) examination.

Second professional clinical postings shall commence before / after declaration of results of the first professional phase examinations, as decided by the institution/ University. Third Professional parts I and part II clinical postings shall start no later than two weeks after the completion of the previous professional examination.

BLDE (DU) UNIVERSITY
SHRI.B.M.PATIL MEDICAL COLLEGE
DEPARTMENT OF PATHOLOGY CURRICULUM

Goals:

- Goal of teaching pathology is to provide the undergraduate students comprehensive & scientific knowledge of causes of the diseases, mechanisms of the diseases, structural alterations induced in the cells and organs of the body, and functional consequences of the morphological changes, in order to enable them to achieve complete understanding of the natural history and clinical manifestations of the disease.
- With reference to etiology, pathogenesis gross and microscopic features in different tissues and organs of the body students should be able to plan the various investigations done for diagnosis and prognosis of the various diseases.

Objectives:

A. Knowledge

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

- Explain concepts of cell injury and changes produced due to it in different tissues and clinical significance of various changes due to cell injury
- Describe the normal homeostatic mechanisms, derangements of these mechanism and various effects of it on human systems.
- Describe common genetic, immunological and geriatric disorders and their resultant effects on the human body
- Explain the concept of neoplasia with reference to etiology, pathogenesis gross and microscopic features in different tissues and organs of the body and various investigations done for diagnosis and prognosis of the tumor.
- Explain etio-pathogenesis, pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases.
- Describe common hematological disorders and the investigations necessary to diagnose them and should be able to explain their prognosis.
- Explain altered morphology (gross and microscopic features) of different organ systems in different diseases to the extent needed for understanding of disease processes and their clinical significance.
- Describe different types of biomedical waste, their potential risks and their management.

B. Skills

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

- Describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
- Perform the simple bed-side tests on blood, urine and other biological fluid samples.

- Describe abnormal blood & urinary findings in disease states and identify and describe common abnormalities.
- Plan for investigations aimed at diagnosis and management of the cases of common disorders in collaboration with clinical departments.
- Understanding the utility of frozen section, automated hematology cell counter, flow cytometry and molecular diagnostic techniques in the diagnosis of various disorders

C. Attitude and communication skills:

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

- Communicate effectively with peers and teachers in small group teaching learning activities.
- Demonstrate the ability to work effectively with peers in a team.
- Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers.

Course Content, Teaching Hours, Teaching Learning Methods and Student Assessment

Total Teaching Hours	**230 Hours**
Didactic Lectures	80 hrs
Small group teaching/Tutorials/Group Discussion/Integrated learning/ Practical	138 hrs
Self Directed Learning (SDL)	12 hrs

Course Content, Teaching Learning Methods and Student Assessment

(As per the "Competency based Undergraduate Curriculum for the Indian Medical Graduate 2018: Medical Council of India")

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH /S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Introduction to Pathology		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	Departmental orientation	Written/ Viva voce			
PA1.2	Enumerate common definitions and terms used in Pathology	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA1.3	Describe the history and evolution of Pathology	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cell Injury & Adaptation		**Number of competencies: (08)**			**Number of Procedure that require certification: (NIL)**				
PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

	clinical significance								
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.5	Describe and discuss pathologic calcifications, gangrene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Amyloidosis		**Number of competencies: (02)**			**Number of Procedure that require certification: (NIL)**				
PA3.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA3.2	Identify and describe amyloidosis in a pathology specimen	S	SH	N	DOAP session	Skill assessment			
Topic: Inflammation		**Number of competencies: (04)**			**Number of Procedure that require certification: (NIL)**				
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.3	Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

	each								
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic Specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Healing & Repair		**Number of competencies: (01)**			**Number of Procedure that require certification: (NIL)**				
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce	Written/ Viva voce	General Surgery	
Topic: Hemodynamic disorders		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA6.1	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA6.2	Define and describe hyperemia, congestion, hemorrhage	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.4	Define and describe normal haemostasis & the etiopathogenesis & consequences of thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.5	Define and describe embolism and its causes and common types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.6	Define and describe Ischemia/infarction its types, etiology, morphologic changes and clinical effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.7	Identify & describe the gross & microscopic features of infarction in a pathologic specimen	S	SH	Y	Lecture, Small group discussion	Skill Assessment			
Topic: Neoplastic disorders		**Number of competencies: (05)**			**Number of Procedure that require certification: (NIL)**				
PA7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behavior and spread. Differentiate between benign from maignant neoplasm	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.2	Describe the molecular basis of cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.3	Enumerate carcinogens and describe the process of carcinogenesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.4	Describe the effects of tumor on the host	K	KH	Y	Lecture, Small group	Written/ Viva voce			

	including paraneoplastic syndrome				discussion				
PA7.5	Describe immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Topic: Basic diagnostic cytology		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique & stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen	S	KH	Y	DOAP session	Skill assessment			
Topic: Immunopathology & AIDS		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Infections & Infestations		**Number of competencies: (04)**			**Number of Procedure that require certification: (NIL)**				
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and	K	KH	N	Lecture, Small group	Written/ Viva voce		General Medicine	Microbiology

	pathology of common bacterial, viral, protozoal and helminthic diseases				discussion				
Topic: Genetic & pediatric diseases		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.2	Describe etio-pathogenesis and pathology of tumor and tumor- like conditions in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Environmental & nutritional diseases		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry Pediatrics	
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Introduction to hematology		**Number of competencies: (05)**			**Number of Procedure that require certification: (NIL)**				
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the Peripheral blood picture in anemia	K	KH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Microcytic anemia		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				

PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Macrocytic anemia		**Number of competencies: (04)**			**Number of Procedure that require certification: (NIL)**				
PA15.1	DescribethemetabolismofVitaminB12 andtheetiologyandpathogenesisofB12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA15.2	Describe laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	S	SH	Y	DOAP session	Skill assessment			
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Hemolytic anemia		**Number of competencies: (07)**			**Number of Procedure that require certification: (01)**				
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and Thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	P	Y	DOAP session	Skill assessment	1		
PA16.7	Describe the correct technique to perform a	S	SH	Y	Lecture, Small group	Written/ Viva voce			

	cross match				discussion				
Topic: Aplastic anemia		**Number of competencies: (02)**			**Number of Procedure that require certification: (NIL)**				
PA 17.1	Enumerate the etiology, pathogenesis and findings in a plastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Leukocyte disorders		**Number of competencies: (02)**			**Number of Procedure that require certification: (NIL)**				
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lymph node & spleen		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment			
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.5	Identify & describe the features of Hodgkin's lymphoma in a gross & microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	
PA19.6	Enumerate and differentiate the causes of Splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen of an enlarged spleen	S	SH	Y	DOAP session	Skill assessment			
Topic: Plasma cell disorders		**Number of competencies: (01)**			**Number of Procedure that require certification: (NIL)**				
PA20.1	Describe the features of plasma cell Myeloma	S	SH	Y	DOAP session	Skill assessment			
Topic: Hemorrhagic disorders		**Number of competencies: (05)**			**Number of Procedure that require certification: (NIL)**				

PA21.1	Describe normal hemostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and haemophilia's	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA21.3	Differentiate platelet from clotting disorders based on the clinical & hematologicfeatures	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Blood banking & transfusion		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA22.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics &Gynaecology	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.5	Enumerate & describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA22.6	Describe transfusion reactions &enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.7	Enumerate the indications & describe the principles & procedure of autologous transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Clinical Pathology		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA23.1	Describe abnormal urinary findings in disease states & identify & describe common urinary	S	SH	Y	DOAP session	Skill Assessment			

	abnormalities in a clinical specimen								
PA23.2	Describe abnormal findings in body fluids in various disease states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests, renal function tests or liver function tests	S	SH	Y	DOAP session	Skill Assessment			
Topic: Gastrointestinal tract		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA24.1	Describe the etiology, pathogenesis, pathology & clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe &identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.4	Describe & etiology & pathogenesis & pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.5	Describe & etiology & pathogenesis & pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.6	Describe & etiology, pathogenesis pathologic & distinguishing features of Inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.7	Describe the etiology, pathogenesis, pathology & distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hepatobiliary system		**Number of competencies: (06)**			**Number of Procedure that require certification: (01)**				
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyper bilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry General Medicine	
PA25.2	Describe the pathophysiology & pathologic changes seen in hepatic failure & their clinical	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine General Surgery	

	manifestations, complications & consequences								
PA25.3	Describe the etiology & pathogenesis of viral & toxic hepatitis: distinguish the causes of hepatitis based on the clinical & laboratory features. Describe thepathology, complications & onsequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the patho physiology, pathology & progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine General Surgery	
PA25.5	Describe the etiology, pathogenesis & complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine General Surgery	
PA25.6	Interpret liver function & viral hepatitis serologypanel. Distinguish obstructive from non-obstructive jaundice based on clinical features & liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	
Topic: Respiratory System		**Number of competencies: (07)**			**Number of Procedure that require certification: (NIL)**				
PA26.1	Define & describe the etiology, types, pathogenesis, stages, morphology & complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross & microscopic appearance & complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology & complications & evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define & describe the etiology, types, pathogenesis, stages, morphology microscopic appearance & complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	

	& complications of Occupational lung disease								
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Topic: Cardiovascular System		**Number of competencies: (10)**			**Number of Procedure that require certification: (NIL)**				
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA27.2	Describe the etiology, dynamics, pathology types & complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA27.3	Describe the etiology, types, stages pathophysiology, pathology & complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests & complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

	complications of infective endocarditis								
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardio vascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Urinary Tract		**Number of competencies: (16)**			**Number of Procedure that require certification: (NIL)**				
PA28.1	Describe the normal histology of the kidney	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.2	Define, classify & distinguish the clinical syndromes & describe the etiology, pathogenesis, pathology, morphology, clinical & laboratory& urinary findings, complications of renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.3	Define & describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression & complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define & describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression & complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.5	Define & classify glomerular diseases. Enumerate & describe the etiology, pathogenesis, mechanisms of	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

	glomerular injury, pathology, distinguishing features & clinical manifestations of glomerulonephritis								
PA28.6	Define & describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression & complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate & describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate & classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define &describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression & complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.13	Define classify & describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression &	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

	complications of renal stone disease & obstructive uropathy								
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features & progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features &progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Male Genital Tract		**Number of competencies: (05)**			**Number of Procedure that require certification: (NIL)**				
PA29.1	Classify testicular tumors & describe the pathogenesis, pathology, presenting & distinguishing features, diagnostic tests, progression & spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Female Genital Tract		**Number of competencies: (09)**			**Number of Procedure that require certification: (NIL)**				

PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.7	Describe the etiology, hormonal dependence, features &morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
PA30.9	Describe the etiology, hormonal dependence & morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
Topic: Breast		**Number of competencies: (04)**			**Number of Procedure that require certification: (NIL)**				
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology & hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology,	K	KH	Y	Lecture, Small group	Written/ Viva voce		General Surgery	

	pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast				discussion				
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill Assessment		General Surgery	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
Topic: Endocrine System		**Number of competencies: (09)**			**Number of Procedure that require certification: (NIL)**				
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine,	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory & imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory & imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory & morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.7	Describe the etiology, pathogenesis,	K	KH	N	Lecture, Small group	Written/ Viva voce		Physiology, General	

	manifestations, laboratory, morphologic features, complications of adrenal insufficiency				discussion			Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Topic: Bone & Soft Tissue		**Number of competencies: (05)**			**Number of Procedure that require certification: (NIL)**				
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic & morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic & morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.4	Classify &describe the etiology, pathogenesis, manifestations, radiologic & morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic& laboratory features, diagnostic criteria&complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Skin		**Number of competencies: (04)**			**Number of Procedure that require certification: (NIL)**				

PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	
Topic: Central Nervous System		**Number of competencies: (03)**			**Number of Procedure that require certification: (NIL)**				
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Topic: Eye		**Number of competencies: (01)**			**Number of Procedure that require certification: (NIL)**				
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, S - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Schedule for AETCOM Session

AETCOM module number	Topic	Duration of teaching session (in hours)	TL methods	Assessment
AETCOM 2.1	The foundations of communication	5	Small group sessions-Group discussion/role play/ videos	Formative assessment of participation in role play and group discussion session
AETCOM 2.5	Bioethics – Case studies on patient autonomy and decision making	6	SDL Case based learning	Formative assessment based on participation in the session
AETCOM 2.6	2.6: Bioethics: Case studies on autonomy and decision making	5	SDL Case based learning	Formative assessment based on participation in the session
AETCOM 2.7	2.6: Bioethics: Case studies on autonomy and decision making	5	SDL Case based learning	Formative assessment based on participation in the session

Teaching and Learning Methodology:

Department stresses on teaching basic fundamentals of the disease process and the applied aspects relevant to the clinical subjects. Following tools are employed:

1. **Didactic lectures:**
   All lectures will have defined specific learning objectives linked to the relevant competencies. The focus will be on the core competencies of thetopic. Appropriate clinical and morphological images will be utilized. In the lecture Pathogenesis and morphological changes pertaining to the topic will be addressed. Lectures will be conducted as Interactive session by asking open ended questions, quizzes, incomplete handouts, creation of models, solving problems or a flipped classroom approach.

2. **Seminars, Tutorials**

3. **Case studies:** The significant and common diseases are discussed in the form of a representative clinical case in which clinical features, course of the disease and relevant laboratory investigation in particular patient are discussed in an interactive manner in small groups followed by clinico-pathologic correlation & demonstration of the gross and microscopic features of the disease

4. **Practical:** Demonstration of gross, and/or microscopic features.

5. **Problem based exercises** (Charts)

6. **Small group discussion**

7. **Self-directed learning**

Topics for Group discussion/Tutorial/ Small group teaching

1. General Pathology – Edema, Shock, Thrombosis, Molecular basis of cancer, Tumour markers, Paraneoplastic syndrome, Hypersensitivity Reactions, Autoimmune disorders, Storage disorders, Obesity
2. Systemic Pathology – Rheumatic Heart Disease, Atherosclerosis, Alcoholic liver diseases, Cirrhosis, Chronic obstructive diseases, Pneumoconiosis, Risk factors colorectal carcinoma & adenoma carcinoma sequence, Renal Failure, Carcinoma cervix, thyroid disorders
3. Hematology - WBC disorders, Bleeding disorders, Blood Banking(transfusion reaction & component therapy)

Practical Topics:

Sr. No	Number	Topic	Teaching hours
1	PA1.1	Role of pathologist in diagnosis and management of disease – Introduction to Department & Various sections of Department	4hrs
2	PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens – Reversible cell injury	2 hrs
3	PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens - Irreversible cell injury	2hrs
4	PA3.2	Identify and describe amyloidosis in a pathology specimen	2hrs
5	PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	4hrs
6	PA6.2 & PA6.7	Identify and describe the gross and microscopic features of infarction & CVC liver in a pathologic specimen	2hrs
7	PA7.1	Identify and describe the gross and microscopic features of Benign & Malignant tumor	2hrs
8	PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen(Cytology Charts)	2hrs
9	PA13.2	Describe the role of anticoagulants in hematology	2hrs
10	PA13.5	Perform, Identify and describe the peripheral blood picture anemia	2hrs
11	PA14.3	Identify and describe the peripheral smear in microcytic anemia	2hrs
12	PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	2hrs
13	PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	2hrs
14	PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	2hrs
15	PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	2hrs

16	PA19.7	Identify and describe the gross specimen of an enlarged spleen	2hrs
17	PA20.1	Describe the features of plasma cell myeloma	2hrs
18	PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	6 hrs
19	PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis,	2hrs
20	PA23.3	Describe and interpret the abnormalities in a panel containing thyroid function tests	2hrs
21	PA23.3	Describe and interpret the abnormalities in a panel containing renal function tests or liver function tests	2hrs
22	PA24.3 to PA24.7,	Identify and describe the gross and microscopic features of peptic ulcer, Carcinoma stomach, Tuberculosis of Intestine, Carcinoma colon	2hrs
23	PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	2hrs
24	PA25.4	Identify and describe the gross& microscopic features of Cirrhosis of liver & Hepatocellular carcinoma	2hrs
25	PA27.6	Interpret abnormalities in cardiac function testing in acute coronary syndromes	2hrs
26	PA26.4 & PA26.6	Identify and describe the gross& microscopic features of tuberculosis of lung & Bronchogenic carcinoma	2hrs
27	PA28.10, PA28.13, 14	Identify and describe the gross & microscopic features of chronic Pyelonephritis, Hydronephrosis &Renal cell carcinoma	2hrs
28	PA29.1 & PA 29.2	Identify and describe the gross& microscopic features of Seminoma & carcinoma Penis	2hrs
29	PA30.1	Identify and describe the gross& microscopic features of carcinoma cervix	2hrs
30	PA30.4	Identify and describe the gross& microscopic features of Ovarian Tumours	2hrs
31	PA31.3	Identify and describe the gross& microscopic features of Carcinoma of Breast	2hrs
32	PA33.2	Identify and describe the gross& microscopic features of Bone Tumours	2hrs
33	PA 34.4	Identify, distinguish and describe common tumors of the skin	2hrs
34	PA35.3	Identify the etiology of meningitis based on given CSF parameters	2hrs

Skill Certification: The list of certifiable skills with number of sessions for skill certification (Procedures to be performed by students)

Competency No.	Topics	Number of Sessions
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	2
PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non obstructive jaundice based on clinical features and liver function tests	2
PA 35.3	Identify the etiology of meningitis based on given CSF parameters	1
PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	2

A. Hematology Practical Slides:

- Microcytic hypochromic anemia
- Macrocytic anemia &Dimorphic anemia
- Hemolytic anemia
- Eosinophilia
- Neutrophilia
- Malarial parasites and microfilaria
- Megaloblastic anemia-Bone marrow
- Acute myeloid leukemia
- Chronic myeloid leukemia
- Acute lymphoid leukemia
- Chronic lymphoid leukemia
- Multiple myeloma- Bone marrow slides

B. Clinical Pathology Charts

- T.B.Meningitis
- Viral meningitis
- Pyogenic meningitis
- Nephrotic syndrome
- Nephritic syndrome
- Obstructive jaundice
- Juvenile diabetic ketoacidosis
- Acute lymphoblastic leukemia
- Acute myeloblastic leukemia
- Chronic lymphatic leukemia
- Chronic myeloid leukemia
- Microcytic hypochromic anemia
- Multiple myeloma
- Spherocytic anemia with hemolytic jaundice

C. Histopathology:

- Techniques of histopathology– demonstration
- H & E staining and other special staining – demonstration
- Demonstration of HP slides and specimens

D. Following histopathology slides and/or specimens

- Kidney cloudy change – Histopathology slide
- Fatty change liver -– Histopathology slide & Specimen
- Myocardial Infarction - Coagulation necrosis
- Lymph node - caseous necrosis
- Spleen Amyloidosis – Gross Specimen
- Kidney Amyloid- Histopathology slide
- Lobar Pneumonia - Histopathology slide & Specimen
- Acute ulcerative appendicitis -Histopathology slide & Specimen
- Lepromatous leprosy – skin -Histopathology slide
- Tuberculoid leprosy – skin-Histopathology slide
- Actinomycosis -Histopathology slide
- Granulation tissue - Histopathology slide
- Tuberculous lymphadenitis-Histopathology slide & Specimen
- Infarction - Histopathology slide & Specimen
- CVC lung - Histopathology slide
- CVC liver - - Histopathology slide & Specimen
- Skin – papilloma -Histopathology slide
- Leiomyoma with hyaline change -Histopathology slide & Specimen
- Squamous cell carcinoma -Histopathology slide & Specimen
- Adenocarcinoma – Colon -Histopathology slide & Specimen
- Capillary&Cavernous haemangioma - Histopathology slide
- Splenomegaly -Histopathology slide & Specimen
- Hodgkin's lymphoma
- Stomach - chronic peptic ulcer
- Tuberculosis of Intestine
- Carcinoma Stomach
- Liver- portal and biliary cirrhosis
- Lung - lobar and broncho pneumonia
- Lung - fibrocaseous tuberculosis
- Aorta - atherosclerosis
- Kidney - chronic pyelonephritis
- Kidney - RCC
- Testis - seminoma
- Uterus - leiomyoma
- Bone - osteogenic sarcoma

- Bone - osteoclastoma
- Breast - fibroadenoma
- Breast - carcinoma
- Skin –Squamous cell carcinoma
- Ovarian tumours

E. Instruments:

- Lumbar puncture needle
- Liver biopsy needle
- Bone marrow aspiration needle
- Needles used for FNAC
- Wintrobe Tube with stand
- Westergren's E.S.R. Tube and Stand
- Urinometer
- R.B.C. Pipette
- W.B.C. Pipette
- Sahli's Haemoglobinometer
- Sahli's Haemoglobinometer central diluting tube
- Sahli's Haemoglobinometer pipette
- Albuminometer
- Neubauer's Counting Chamber
- CPDA blood bag
- Anticoagulant bulbs
- Uristix

F. Cytology Charts:

- Vaginal smear chart with cytology images- Carcinoma cervix
- FNAC Fibroadenoma Breastwith cytology images
- FNAC – Infiltrating duct carcinoma breast with cytology images

Integration Departments & Topics:

(As per the "Competency based Undergraduate Curriculum for the Indian Medical Graduate 2018: Medical Council of India")

Department of Anatomy

- Ultra structure of connective tissue
- Exocrine gland microscopic features
- Lymphoid tissue microscopic features & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function
- Classification of various types of bones and description of microscopic features

Department of Physiology

- Apoptosis - programmed cell death
- Different types of anemia & jaundice
- Physiological basis of hemostasis and anticoagulants
- Bleeding & clotting disorders (hemophilia, purpura)
- Different blood groups and the clinical importance of blood grouping, blood banking and transfusion
- Estimation of HB, RBC, TLC, RBC indices, DLC, blood groups, BT/CT
- Tests for esr, osmotic fragility, hematocrit and interpretion of the test results
- Reticulocyte and platelet count
- Pathophysiology of myasthenia gravis
- Thrombosis, infarction & aneurysm

Department of Biochemistry, General Medicine, Anatomy& Physiology

- Functions of the kidney, liver, thyroid and adrenal and tests that are commonly done in clinical practice to assess the functions of kidney, liver, thyroid and adrenal glands.

Department of Biochemistry & General Medicine

- Interpretation of laboratory results of enzyme activities & the clinical utility of various enzymes as markers of pathological conditions discussion
- Functions of proteins and structure function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies
- Major types of hemoglobin and its derivatives found in the body and their physiological/ pathological relevance
- Role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis
- Causes (including dietary habits), effects and health risks associated with being overweight/obesity
- Innate and adaptive immune responses, self/non-self-recognition and the central role of T-helper cells in immune responses
- Basis and rationale of biochemical tests done in the following conditions: diabetes mellitus, dyslipidemia, myocardial infarction, renal failure, gout, proteinuria, nephrotic syndrome, edema, jaundice, liver diseases, pancreatitis, disorders of acidbase balance, thyroid disorders

Department of Biochemistry & General Medicine, Community Medicine

- Nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)

Biochemistry Obstetrics & Gynecology, General Surgery

- Cancer initiation, promotion oncogenes & oncogene activation.
- Biochemical tumor markers and the biochemical basis of cancer therapy.

- Cellular and humoral components of the immune system & describe the types and structure of antibody.

Microbiology

- Immunological mechanisms in health & mechanisms of immunity and response of the host immune system to infections

Microbiology General Medicine

- Rheumatic fever and its diagnosis. Classification etio-pathogenesis, clinical features and diagnostic modalities of Infective endocarditis
- Common microbial agents causing anemia. Morphology, mode of infection and the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia
- Etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala azar, malaria, filariasis and other common parasites prevalent in India
- Epidemiology, the etio-pathogenesis, evolution, complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV
- Enteric fever pathogens and the evolution of the clinical course, the laboratory diagnosis
- Etio-pathogenesis of Acid Peptic disease (APD) and the clinical course.
- Etio-pathogenesis and the viral markers in the evolution of Viral hepatitis. The appropriate laboratory test in the diagnosis of viral hepatitis
- Role of oncogenic viruses in the evolution of virus associated malignancy
- Etio-pathogenesis, clinical course and laboratory diagnosis of meningitis &encephalitis.

Forensic Medicine & Toxicology

- Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical death and Brainstem death
- Autopsy procedure, postmortem examination, different types of autopsies, aims and objectives of post-mortem examination
- Different types of specimens and tissues to be collected both in the living and dead: body fluids (blood, urine, semen, faeces, saliva), skin, nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Finger printing.

General Medicine, Physiology

- Heart disease including: rheumatic/ valvular, ischemic, hypertrophic, inflammatory
- Risk factors both modifiable and non- modifiable of atherosclerosis and IHD
- Community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia
- Malignant causes of fever including hematologic and lymph node malignancies
- Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood

and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool

- Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy
- Hyperbilirubinemia, alcoholic liver disease, pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy
- Pathogenesis, evolution and clinical features of common HIV related malignancies, skin and oral lesions, appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, opportunistic infections
- Autoimmune disease
- Primary and secondary hypertension
- Describe and discuss the meaning and utility of various components of the hemogram
- Laboratory tests for iron deficiency, Vit B12 and folate deficiency
- Indications for blood transfusion and the appropriate use of blood components
- Acute and chronic renal failure
- Pathogenesis and risk factors and clinical evolution of type 1 diabetes & type 2 diabetes, thyroid disease
- Inherited & modifiable risk factors for common malignancies in India, natural history, presentation, course, complications and cause of death for common cancers
- Obesity including modifiable and non-modifiable risk factors and secondary causes
- Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion
- Diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC

Pediatrics

- obesity in children, deficiency /excess of Vitamin D (Rickets and Hypervitaminosis D)
- Hemodynamic changes, clinical presentation, complications and management of Heart Diseases –VSD, ASD and PDA, Fallot's Physiology

Obstetrics & Gynaecology

- Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management

Dentistry, ENT

- Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity.

SCHEME OF EXAMINATION

Internal Assessment [kindly refer section II for general guidelines]

Calculation of Internal Assessment

Theory(Maximum marks)		**Practical (Maximum marks)**	
Term end theory Papers	50	Practical &Viva	15
Day to day assessment /seminars/research project	10	Journal/Record	05
Total	**60**		**20**

- Attendance requirement is 75% in theory & 80% in Practical for eligibility to appear for the university examination.
- Internal assessment will be based on competencies and skills.
- Importance will be given to day to day performance. 20% weightage will be given to day to day assessment (Performance in Periodic tests, MCQ, Participation in Seminars and Research Projects etc).
- Regular periodic Formative assessment examination will be conducted throughout the course. There will be **minimum three internal assessment examinations.** Out of three internal assessment examinations an average of the two best internal examination scores will be considered. Marks obtained in day to day assessment will be added and the sum of these will be considered as the final internal assessment marks. The internal examinations will have MCQ (20% of total marks) in theory.
- The **third internal examination** will be the **preliminary examination** & will be conducted on the lines of the **university examination.**
- Prior to submission to the University, the marks for internal examination theory assessments will be calculated out of 60 marks, regardless of the maximum marks.
- Prior to submission to the University, the marks for internal examination practical assessments will be calculated out of 20 marks, regardless of the maximum marks.
- Only the final marks out of 60 (theory) and 20 (practical) will be submitted to the University, separately for theory and practical for each internal assessment.
- At least 35% marks of the total marks combined in theory and practical assigned for internal assessment has to be obtained to be eligible to appear for university examinations. A candidate who has not secured requisite aggregate in the internal assessment may be permitted to appear for another internal examination as a remedial measure. If he/she successfully completes the remediation measures prescribed by the Institution / University as the case may be, only then he/she is eligible to appear for University Examination.
- The students should be made aware of the results of internal assessment.
- Students must secure **at least 50% marks** of the total marks (combined in theory and practical) assigned for internal assessment to be **declared successful** at the final university examination of that subject.

Practical: 20 Marks

- There will be minimum three terminal practical examinations.
- Day to day records and log book (including required skill certifications) will be given importance in internal assessment.
- Average of three terminal examinations will be reduced to 15 and marks obtained for Practical Records will be reduced to 05.
- Terminal examinations will be having OSPE in either practical I or II Formative exams.
- The Internal Assessment Marks both in theory and Practical obtained by the candidate will be sent to the University at least fifteen days prior to the commencement of Summative Theory Examinations.
- The Internal Assessment marks will be displayed on the notice board. The students will be shown their answer scripts. Their signatures will be taken against the marks obtained. The answer scripts will be stored in the respective department for 3yrs.

Internal assessment marks will not be added to University examination marks but will reflect as a separate head of passing at the summative examination.

Distribution of Marks for University Examination:

- 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.
- Nature of questions will include different types such as structured essays, modified essays (case based), short essays and short answers questions.
- Viva/oral examination should assess the student's ability to explain key concepts with functional and clinical correlations. Viva should focus on application and interpretation.
- The marks obtained in the viva examination will be added to the practical marks.

Theory Examination:

1. Designing of question paper will take into consideration at all levels of knowledge domain e.g. Bloom's taxonomy of cognitive domain with appropriate verbs for the questions at each level to assess higher levels of learning.
2. Structuring of question paper will be using combination of various types of questions e.g. structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part will be indicated separately.
3. Long essay question will have a structured clinical /Practical question, problem to the students and require them to apply knowledge and integrate it with disciplines. The proper marking distribution will be provided.

4. MCQs will not be more than 20% weightage of total marks. One short essay (5 marks) will be preferably a case vignette.
5. Short question from AETCOM will also be included in theory papers in Formative as well as Summative examinations.

There will be Two Theory Papers with Hundred Marks each. Total duration of Each Paper will be 03 Hrs.

Table Showing Scheme for Examination Marks

Theory (Maximum Marks)		**Practical (Maximum Marks)**	
Paper I	100	Practical Exam	60
Paper II	100	Viva Voce	40
Total	**200**	**Total**	**100**

A. THEORY: 200 Marks

There shall be two theory papers of 100 marks each and duration of each paper shall be 3 hours. The pattern of questions in each paper shall be as mentioned below.

Type of Question	**Number of Question**	**Maximum marks for each question**	**Total**
Multiple choice question (MCQ)	20	01	20
Structured Long essay questions (SLEQ) Minimum one clinical case based question in each paper	2	10	20
Short Essay questions (SEQ)	06	05	30
Short answer questions (SAQ) -	10	03	30
		Total Marks	100

B. Practical: 60 Marks:

This part will include assessment of clinical and procedural skills & will be based on direct observation by the examiner. There shall be six practical sessions, each carrying 10 marks. The distribution of content and marks for the practical will be:

1. Stained peripheral smear given with clinical history for reporting and interpretation: 10 marks.
2. Analysis of urine sample based on given history- Urine sample examination and interpretation: 10 marks.
3. Given chart of Clinical pathology/Haematology/Cytology cases- analysis and interpretation: 10 marks.
4. Histopathology slide with history for analysis: 10 marks.
5. Hemoglobin estimation/Blood grouping: 10 marks.
6. Spotters: 10 marks, There will be ten spotters with each spotter carrying one mark. Of the 10 spotters, two spotters will be instruments, two charts, 2 spotters of histopathology & hematology slides each, and two gross specimens.

C. Viva - Voce Examination: 40 Marks.

1. General pathology 10 marks
2. Clinical pathology and hematology 10 marks
3. Systemic pathology – I 10 marks
4. Systemic pathology – II 10 marks

The viva - voce examination shall carry 40 marks. All four examiners will conduct the examination. Viva will focus on application and interpretation. Viva marks to be added to practical and not 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.

Distribution of Topics for theory Paper I and II will be as follows:

Paper I (Max 100 marks)

Topics	Marks Allotted
Multiple choice questions	20
General pathology	40
Hematology	20
Clinical Pathology	20
Total	**100**

Paper II (Max 100 marks)

Topic	Marks Allotted
Multiple choice questions	20
CVS and RS	16
GIT and HBS	16
Renal, Endo, RES	16
MGS, FGS, Breast	16
B&J, ST, CNS, PNS, Skin	16
Total	**100**

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.

Criteria for Passing University Examination

- The student must secure at least 40% marks in each of the two theory papers with minimum 50% of marks in aggregate (both papers together) to pass.
- The marks obtained in the viva examination will be added to the practical marks.
- The student must secure a minimum of 50% of marks in aggregate in the viva and practical examination (both combined) to pass.
- Students must secure at least 50% marks of the totally marks (combined in theory & practical) assigned for Internal assessment to be declared successful at the final university examination of that subject.

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.

RECOMMENDED BOOKS: (Latest edition)

1. Robbins and Cotran, Pathologic Basis Of Disease
2. Harsh Mohan, Textbook of Pathology,
3. Harsh Mohan, Textbook of Practical Pathology
4. General and Systematic Pathology By JCE Underwood,
5. Walter and Israel, General Pathology
6. Sabitri Sanyal, Prep Manual for Undergraduates- Clinical Pathology.
7. Dr. Tejinder Singh, textbook of haematology

REFERENCE BOOKS:

1. Curran, Colour Atlas of Histopathology
2. Dacie and Lewis (Sm), Practical Haematology
3. Wintrobes Clinical, Hematology
4. Henry, clinical diagnosis and management by laboratory method,
5. Pathology By Rubin And Farber
6. Evan Damjanov, Secrets In Pathology

BLDE (DU) UNIVERSITY
SHRI.B.M.PATIL MEDICAL COLLEGE
DEPARTMENT OF PHARMACOLOGY CURRICULUM

Goals:

The broad goal of the teaching of undergraduate students in Pharmacology is to inculcate a rational and scientific basis of therapeutics.

Objectives:

Knowledge:

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

1. Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs.
2. List indications, contraindications, interactions and adverse reactions of commonly used drugs.
3. Inculcate the use of appropriate drug in a particular disease with considerations to the cost, efficacy and safety for
    a) Individual needs.
    b) Mass therapy under national health programs
4. List the drugs of dependence and their management.
5. Classify environmental and occupational pollutants and state the management issues.
6. Explain about drug use in special medical situations such as pregnancy, lactation, infancy and old age.
7. Integrate the concept of rational drug therapy in clinical pharmacology.
8. State the principles underlying the concept of 'Essential Drugs'.
9. Evaluate the ethics and modalities involved in the development and introduction of new drugs.

Skills:

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

1. Demonstrate understanding of the use of various dosage forms.
2. Prescribe drugs for common ailments, including the selection of P-drug.
3. Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.
4. Recognize adverse reactions and interactions of commonly used drugs, report an adverse drug reaction if encountered clinically.

5. Critical evaluation of the drug promotional literature & demonstrate how to optimize interaction with pharmaceutical representative to get an authentic information on drugs.

Affective Domain:

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

1. Communicate with the patient with empathy & motivate the patients with chronic diseases to adhere to the prescribed management by the health care provider.
2. Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs.
3. Demonstrate the ability to work effectively with peers in a team.

Integration: Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical departments.

Course Contents, Teaching Learning Methods & Assessment (As per the "Competency Based Undergraduate Curriculum for the Indian Medical Graduate 2018: Medical Council of India")

No.	Competency The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core Y/N	Suggested T/L methods	Suggested Assessment methods	Vertical Integration	Horizontal Integration
Topic: General Pharmacology		**Number of procedures that require certification: (NIL)**						
PH1.1	Define & describe the principles of pharmacology & Pharmaco-therapeutics	K	K	Y	Lecture	Written/ Viva-voce		
PH1.9	Describe, nomenclature of drugs I.e. generic branded drugs	K/S	SH	Y	Lecture, Practical	Written/ Viva-voce		
PH1.11	Describe various routes of drug administration, e.g., oral, SC, IV, IM, SL	K	KH	Y	Lecture, Small group discussion	Written/ Viva-voce		
PH1.4	Describe absorption, distribution, metabolism & excretion of drugs	K	KH	Y	Lecture, Small group	Written/ Viva-voce		
PH1.3	Enumerate & identify drug formulations & drug delivery systems	K/S	SH	Y	Lecture, Practical	Written/ Viva-voce		
PH1.5	Describe general principles of mechanism of drug action	K	KH	Y	Lecture, group discussion	Written/ Viva-voce		
PH1.59	Describe & discuss the following: Essential medicines, FDS's, OTC drugs, Herbal medicines	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.60	Describe & discuss Pharmacogenomics & Pharmacoeconomics	K	KH	N	Lecture	Written/ Viva-voce		
PH1.8	Identify & describe the management of drug interactions	K/S	KH	Y	Lecture, Practical	Written/ Viva-voce		
PH1.64	Describe overview of drug development, Phases of clinical trials &Good Clinical Practice	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.63	Describe Drug Regulations, acts & other legal aspects	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.2	Describe the basis of Evidence based medicine & Therapeutic drug monitoring	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.7	Define, identify & describe the	K/S	KH	Y	Lecture	Written/		

	management of adverse drug reactions				Practical	Viva-voce		
PH1.6	Describe principles of Pharmacovigilance & ADR reporting systems	K	KH	Y	Lecture Practical	Written/ Viva-voce		
PH3.4	To recognize & report an adverse drug reaction	S	SH	Y	Skill station	Maintenance of log book/ skill station		
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral/solid/liquid)	S/C	SH	Y	DOAP Sessions	Skill assessment		
PH4.1	Administer drugs through various routes in a simulated environment using mannequins	S	SH	Y	DOAP Sessions	Skill assessment		
PH1.56	Describe basic aspects of Geriatric & Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva-voce	Pediatrics	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP Sessions	Skill assessment	Pediatrics	
PH1.12	Calculate the dosage of drugs using appropriate formula for an Individual patient, including children, elderly & patient with renal dysfunction.	K/S	SH	Y	Lecture, Practical	Written/ Viva-voce	Pediatrics, General Medicine	
Topic: Autonomic nervous system		**Number of procedures that require certification: (NIL)**						
PH1.13	Describe mechanism of action, types, doses, slide effects, indications & contraindications of adrenergic & anti-adrenergic Drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva-voce		
PH1.14	Describe mechanism of action, types, doses, side effects, indications & contraindications of cholinergic & antcholinergic drugs	K	KH	Y	Lecture, Group discussion	Written/ Viva-voce		
PH1.15	Describe mechanisms of faction, types, doses, side effects, indications & C/I of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva-voce	Anesthesiology Physiology	
PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor & vaso-depressors with appropriate blockers) using computer aided learning	S	SH	Y	Skill Lab	Skill station		
Topic: Autacoids		**Number of procedures that require certification: (NIL)**						
PH1.16	Describe mechanisms of action, types, doses, side effects, indications & contraindications of the drugs which act by modulating autacoids, including: anti-histamines, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine	
Topic: Drugs used in the disorders of RS		**Number of procedures that require certification: (NIL)**						
PH1.32	Describe the mechanisms of action, types, doses, side effects, indications & C/I of drugs used in bronchial asthma & COPD	K	KH	Y	Lecture, SGD	Written/ Viva-voce	Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications & contraindications of the drugs used in cough	K	KH	Y	Lecture Group discussion	Written/ Viva-voce	Respiratory Medicine	

	(antitussives, expectorants. Mucolytics)							
Topic: Drugs acting on Kidney		**Number of procedures that require certification: (NIL)**						
PH1.24	Describe the mechanisms of action, types, doses, side effects, indications & C/I of the drugs affecting renal systems including diuretics, antidiuretics-vasopressin & analogues	K	KH	Y	Lecture	Written/ Viva-voce		
Topic: Drugs acting on CVS		**Number of procedures that require certification: (NIL)**						
PH1.26	Describe mechanisms of action, types, doses, side effects, indications & contraindications of the drugs modulating the rennin-angiotensin & aldosterone system	K	KH	Y	Lecture	Written/ Viva-voce	Physiology, General Medicine	
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications & C/I of the drugs used in ischemic heart disease (stable, unstable angina & myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine	
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva-voce	General Medicine	
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of the antiarrhythmics	K	KH	N	Lecture	Written/ Viva-voce	General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of antihypertensive drugs & drugs used in shock	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine	
PH2.3	Demonstrate the appropriate setting up an intravenous drip in simulated environment	S	SH	Y	DOAP sessions	Skill assessment		
Topic: Drugs used in the disorders of Blood		**Number of procedures that require certification: (NIL)**						
PH1.35	Describe the mechanisms of action, types, doses, side effects, indications & C/I of drugs used in hematological disorders like: 1. Drug used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine, Physiology	Patho logy
PH1.25	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva-voce	Physiology, General Medicine	
Topic: drugs acting Nervous system		**Numbers of procedures that require certification: (NIL)**						
PH1.17	Describe the mechanisms of action, types, doses, side effects, indications & contraindications of local anesthetics	K	KH	Y	Lecture	Written/ Viva-voce	Anesthes iology	
PH1.18	Describe the mechanisms of action, types, doses, side effects, indications & C/I of general	K	KH	Y	Lecture	Written/ Viva-voce	Anesthes iology	

	anesthetics & pre-anesthetic medications							
PH1.19	Describe the mechanisms of action, types, doses, side effects, indications & C/I of the drugs which act on CNS (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	K	KH	Y	Lecture	Written/ Viva-voce	Psychiatry Physiology	
PH1.20	Describe the effects of acute & chronic ethanol intake	K	KH	Y	Lecture, group discussion	Written/ Viva-voce	Psychiatry	
PH1.21	Describe the symptoms & management of methanol & ethanol poisonings	K	KH	Y	Lecture, group discussion	Written/ Viva-voce	General Medicine	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, group discussion	Written/ Viva-voce	Psychiatry	
PH1.23	Describe the process & mechanism of drug DE addiction	K/S	KH	Y	Lecture, group discussion	Written/ Viva-voce	Psychiatry	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence & OTC drugs	A/C	SH	Y	Small group discussion	Skill station	Psychiatry	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence & recommend the line of management	K	KH	Y	Small group discussion	Short note/ Viva-voce	Psychiatry	
Topic: Drugs used in disorders of Endocrine System		**Number of procedures that require certification: (NIL)**						
PH1.36	Describe the mechanism of action, types, doses, side effects, indications & C/I of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders & osteoporosis)							
PH1.38	Describe the mechanism of action, types, doses, side effects, indications & contraindications of corticosteroids	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.37	Describe the mechanisms of action, types, doses, side effects, indications & C/I of the drugs used an sex hormones, theire analogues & anterior Pituitary hormones	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.39	Describe mechanism of action, types, doses, side effects, indications & contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva-voce	OBG	
PH1.40	Describe mechanism of action, types, doses, side effects, indications & C/I of, 1. Drugs used in the treatment of infertility& 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva-voce	OBG	
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications & C/I of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva-voce	OBG	

Topic: Drugs used in GI disorders		**Number of procedures that require certification: (NIL)**						
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications & C/I of the drugs used as below: 1. Acid-peptic disease & GERD 2. Antiemetics and prokinetics 3. Antidiarrheals 4. Laxatives 5. Inflammatory Bowel Disease 6 Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, small group discussion	Written/ Viva voce	General Medicine	
PH2.2	Prepare oral rehydration solution from ORS packet and explain its use	S/C	SH	Y	DOAP sessions	Skills assessment		
PH1.61	Describe and discuss dietary supplements and nutraceuticals	K	KH	N	Lecture	Written/ Viva voce		
	Topic: Chemotherapy	**Number of procedures that require certification: (NIL)**						
PH1.42	Describe general principles of chemotherapy	K	KH	Y	Lecture	Written/ Viva-voce		
PH1.43	Describe & discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva-voce	General Medicine pediatrics	Microbiology
PH1.44	Describe the first line antitubercular dugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce	Respiratory Medicine	
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce	Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce	Dermatology Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce	General Medicine	Microbiology
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/ Viva voce		Microbiology
PH1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs	K	KH	Y	Lecture	Written/ Viva voce		
	Topic: Miscellaneous	**Number of procedures that require certification: (NIL)**						
PH1.50	Describe mechanisms of action, types, doses, side effects, indications& contraindications of immunomodulators and management of organ transplant rejection	K	KH	Y	Lecture	Written/ Viva voce		
PH1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents	K	KH	Y	Lecture	Written/ Viva voce		
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce	General Medicine	
PH1.53	Describe heavy metal poisoning and chelating agents	K	KH	N	Lecture	Written/ Viva voce		

PH1.54	Describe vaccines and their uses	K	KH	Y	Lecture	Written/ Viva voce		
PH1.55	Describe and discuss the following National Health Programs including Immunization, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrheal diseases, Anemia& nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce	Dermatology, Venereology & Leprosy	
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce	Ophthalmology	
PH1.61	Describe and discuss dietary supplements and neutraceuticals	K	kH	N	Lecture	Written/ Viva voce		
PH1.62	Describe and discuss antiseptics and disinfectants	K	KH	Y	Lecture	Written/ Viva voce		
Topic: Pan-competencies (Clinical Pharmacology		**Number of procedures that require Certification: (04)**						
PH1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	K/S	SH	Y	Lecture, Practical	Written/ Viva voce		
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	General Medicine	
PH3.2	Perform and interpret a critical appraisal (audit) of a given prescription	S	P	Y	Skill Lab	Maintenance of log book		
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	General Medicine	
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	General Medicine	
PH3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	S	SH	N	Skill station	maintenance of log book		
PH3.7	Prepare a list of essential medicines for a healthcare facility	S	SH	Y	Skill station	Maintenance of log book		
PH3.8	Communicate effectively with a patient on the proper use of prescribed medication	C/A	SH	Y	Skill Lab	Skill station		
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	Skill station	General Medicine	
PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	A/C	SH	Y	Small group discussion	Skill station		
PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the health care	A/C	SH	Y	Small group discussion	Short note/skill station		

	provider							
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	Short note/ viva voce	General Medicine	
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	Short note/ Viva voce		Forensic Medicine

Total Teaching Hours	**230 Hours**
Didactic Lectures	80 hrs.
Small group teaching/Tutorials/Group Discussion/Integrated learning/ Practical	138 hrs.
Self-Directed Learning (SDL)	12 hrs

AETCOM Modules (37 hrs)

1. **Module 1:** The foundations of communication- emphasis is on active listening and data gathering-5 hrs (All II professional departments)
2. **Module 2:** Phase 2 students need to learn fundamental principles of bioethics including the cardinal pillars of ethics viz., autonomy, beneficence, non-maleficence and justice. -2 hrs (Pharmacology and FM)
3. **Module 3:** Health care as a right-2 hrs (All II professional departments and Community medicine)
4. **Module 2.4:** Working in a health care team-6 hrs (All II professional departments and Community medicine)
5. **Module 2.5:** Bioethics continued – Case studies on patient autonomy and decision making-6 hrs (Pharmacology and FM)
6. **Module 2.6:** Bioethics continued: Case studies on autonomy and decision making-5 hrs (Pharmacology and FM)
7. **Module 2.7:** Bioethics continued: Case studies on autonomy and decision making- 5 hrs (Pharmacology and FM)
8. **Module 2.8:** What does it mean to be family member of a sick patient- 6 hrs (All II professional departments and Community medicine)

Practicals:

The practical training should be made need based. It should be relevant to the future function of a basic doctor as well as make the student to understand some of the theoretical knowledge imparted to them through lectures. Some of the experiments are taught by using CAL & some of them are demonstrated in the skills lab or simulation lab depending on the availability

Practical Pharmacy:

Mixtures, percentage solutions, ointments, paints, paste, powders, liniments etc. At least one exercise on each of these types of preparations to be done by the students. Exercises done in these are to be asked as practical exercise at the qualifying examination.

1. The students should be trained to identify, handle and explain the use of various dosage forms to the patient.
2. Students should be trained to interpret the label of commercial preparations.
3. Practical's are conducted as follows:
4. Dosage forms: I, II &III
5. Calculating dosage and percentage of solutions.
6. Counseling for different dosage forms& their proper usage

Innovative Teaching Methods:

1. Students are asked to follow up the patients admitted in our teaching hospital to assess the therapeutic benefit received by them after the treatment. Students are asked to write down the medications received by the patients during their stay in the hospital. They have to refer the text books and write the known adverse effects of those drugs. They have to go back to the patient and enquire if they have suffered from any of those adverse effects. If patient had an ADR, its identification & reporting is taught.
2. Students have to estimate the total cost of drugs taken by the patients admitted in our hospital. They have to find out the cost of similar drugs having the same contents and quality & compare with the drugs prescribed to patients. This will expose them to the concept of Pharmacoeconomics and foster the concept of cost-effective therapy.

Curricular enrichment: The students in later 3 months of professional year II will be taken to the Pharmaceutical industry for giving the first hand exposure on drug development & other aspect.

Scheme of Evaluation:

Internal assessment: Regular periodic examinations shall be conducted throughout the course.

Internal assessment will be based on competencies and skills.

1. There shall be no less than **three** internal assessment examinations. Learners must secure at least 50% marks of the total marks assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject.
2. The third internal examination will be the **preliminary examination**& will be conducted on the lines of the university examination.
3. 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.
4. IA will have a total of 100 marks each for theory & practical's. Among that 80% of the mark weightage will be given for Academic content & 20% weight age will be given to day to day assessment (Performance in Periodic tests, MCQ, Participation in Seminars and Research Projects etc.).
5. The results of IA should be displayed on notice board within two weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better.
6. Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.

Phase	For 1st& 2nd IA				Preliminary examination			
Second professional year	**Theory**	**Practical**	**Viva**	**Total**	**Theory**	**Practical**	**Viva**	**Total**
	100	60	40	200	P1-100 P2-100	60	40	300

Practical marks Distribution: Total: 100 (60 Practical + 40 viva)

1. **Clinical Pharmacy (20 marks)**

a) Dosage form- 10 marks,
b) ORS preparation/ IV drip setting- 5 marks
c) Dose calculation – 5 marks

2. **Clinical Pharmacology (20 marks)**

a) Prescription writing- 5 marks
b) Prescription criticism and rewriting / justification of FDC – 5 marks
c) ADR identification / ADR reporting- 5 marks
d) Dose adjustment in special clinical situations/clinical problems – 5 marks

3. **Experimental Pharmacology (10 marks) OSPE**

a) Drug administration using mannequin/ drug effect using CAL software (or any other).

4. **Communication (10 marks) OSPE**

a) Prescription communication/ethics- legal drug storage/ use of device/drug adherence-compliance/ drug dependence/OTC/ interaction with Medical representative.

Pattern for University examination:

Written Paper: 200 Marks

There shall be two theory papers of 100 marks each and duration of each paper will be of 3 hours. Format of question paper will be as under

Type of Questions	Number of questions	Marks for each question
Essay type questions	02	10
Short Essay types questions	06	5
Short answer questions	10	3
Multiple choice questions	20	1

Topic wise division of paper I and II of second professional theory papers based on new MCI curriculum

Paper I	Competencies
General Pharmacology	PH 1.1 to PH 1.12, PH 1.56, 1.59, 1.60, 1.63 & 1.64, PH 2.4, 3.4 & 4.1
Autonomic nervous system	PH 1.13 to 1.15, PH 4.2
CNS & PNS	PH 1.17 to 1.23, PH 5.5 & 5.6
Autacoids	PH 1.16
Drugs acting on Respiratory system	PH 1.32 & 1.33

Paper II	Competencies
Cardiovascular system, Renal System	PH1.24,1.26, 1.27,1.28,1.29,1.30
Blood	PH1.25,1.31,1.35
GIT	PH1.34
Endocrine system	PH1.36, 1.37,1.38,1.39,1.40,1.41
Chemotherapy	PH1.42, 1.43,1.44, 1.45, 1.46,1.47,1.48,1.49,
Miscellaneous	PH1.50,1.51,1.52,1.53,1.54,1.55,1.56,1.57,1.58,1.61,1.62

ANS: Autonomic Nervous System, PNS: Peripheral Nervous System, CNS: Central Nervous System, GIT: Gastro Intestinal Tract, CVS: Cardio Vascular System.

Recommended Books:

Theory:

1. Tripathi KD. Essentials of Medical Pharmacology, 8th ed, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi-2019.
2. Satoskar RS, Rege NN, Tripathi RK et.al. Pharmacology & pharmacotherapeutics, 25th ed, Elsevier co-published with Popular prakashan, Mumbai-2017.
3. Katzung BG. Basic & Clinical Pharmacology, 14th ed, McGraw-Hill Education, New Delhi-2018.

Reference Books:

1. Brunton LL, Hilal-Dandan R, Knollmann BC. Goodman & Gilman's, The pharmacological basis of therapeutics, 13th ed, McGraw-Hill Education, New Delhi-2018.
2. Brown MJ, Sharma P, Mir FA, Bennett PN. Clinical Pharmacology, 12th ed, Elsevier Limited, China-2019.

Practical:

1. Yadav PV, Thakre V, Deolekar P. Practical Pharmacology, 5th ed, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi-2017.
2. Badyal D. Practical Manual of Pharmacology for Medical Students, 2nd ed, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi-2018.
3. Medhi B, Prakash A. Practical manual of Experimental & clinical Pharmacology, 2nd ed, Jaypee Brothers.

Pharmacology Logbook for Phase Second MBBS Students as per Competency Based Curriculum

Preface:

The Medical Council of India has revised the undergraduate medical education curriculum so that the Indian Medical Graduate (IMG) is able to recognize **"Health for all"** as a national goal. He/she should also be able to fulfil his/her societal obligations. The revised curriculum has specified the competencies that a student must attain and clearly defined teaching learning strategies for the same. With this goal in mind, integrated teaching, skill development, AETCOM and self-directed learning have been introduced. There would be emphasis on communication skills, basic clinical skills and professionalism. There is a paradigm shift from the traditional didactic classroom-based teaching to learning environments where there is emphasis on learning by exploring, questioning, applying, discussing, analysing, reflecting, collaborating and doing. The recognition of this need is enshrined by a greatly enhanced allocation of time to these methods and also the assessment techniques. With this view in mind the log book has been designed as per the guidelines of competency Based curriculum.

Annexure

Name of the College

_____

_____

Admission Year: _____

CERTIFICATE

This is to certify that,

Mr/Ms. _____

Roll No. _____ has satisfactorily attended/completed all assignments mentioned in this logbook as per the guidelines prescribed by Medical Council of India, for Phase I MBBS Competency Based Curriculum in the subject of Pharmacology.

Date: ___/___/_____

Place: _____

Teacher Incharge
Department of Pharmacology

Professor and Head

Instructions:

1. This logbook is prepared as per the guidelines of MCI for implementation of Competency based curriculum for Phase II MBBS students in the subject of Pharmacology.
2. Students are instructed to keep their logbook entries up to date.
3. Students are expected to write minimum 2 reflections on any two activities each of Clinical Pharmacology skills & Self-Directed Learning (SDL).
4. Students also have to write reflections on AETCOM Module 2.1 , 2.2, 2.3) Reflections should be structured using the following guiding questions:
    - What happened? (What did you learn from this experience)
    - So what? (What are the applications of this learning)
    - What next? (What knowledge or skills do you need to develop so that you can handle this type of situation?)
5. The logbook assessment will be based on multiple factors like
    - Attendance.
    - Active participation in the sessions.
    - Timely completions.
    - Quality of write up of reflections.
    - Overall presentation.

INDEX

Sl. No	Description	Page No's	Status Complete/Incomplete	Signature of Teacher
1	Clinical Pharmacology Skills			
2	Self-Directed Learning, Seminars, Projects, Quizzes			
3	AETCOM Module *2.1, 2.2, 2.3			
4	Attendance Records			
5	Records of Internal Assessment			

* AETCOM – Competencies for IMG, 2018, Medical Council of India.

Record of Clinical Pharmacology Skills

Sl. No	Skills	Setting	Correlation	Date	Signature of Teacher
1	Critical appraisal of prescription/audit				
2	Critical evaluation of promotional literature				
3	Filling and interpretation of ADR report				
4	Prepare and explain P drug list				
5	Optimized Interaction with Pharmaceutical representative				
6	Prepare essential drug list for health care facility				

Reflection on Clinical Pharmacology Skills

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on Clinical Pharmacology Skills

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on Clinical Pharmacology Skills

Topic: **Date:**

Signature of Teacher-in- charge

2. Self Directed Learning, Seminars, Tutorials, Projects, Quizzes

Sl. No	Self Directed Learning, Seminars, Tutorials, Projects, Quizzes	Date	Signature of Teacher

Reflection on self directed learning activities

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on self directed learning activities

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on self directed learning activities

Topic: **Date:**

Signature of Teacher-in- charge

3: AETCOM Module

2.1 Foundation of Communication 2

2.2 Foundation of Bioethics

2.3 Health Care as a Right

Reflection on AETCOM module

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on AETCOM module

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on AETCOM module

Topic: **Date:**

Signature of Teacher-in- charge

4A: Attendance Record of the Student

Sl. No	Term	Theory (%)	Practical (%)	Signature of the Student	Signature of the Teacher
A	I Term				
B	II Term				
C	Overall attendance				

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

SECTION 4B: Details of attending extra classes [For poor attendance (if any)]

Sl. No	Date	Period	Total Hrs	Signature of Student	Signature of Teacher
Total Hours					

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

Section 5: Records of Internal Assessment Examinations

Records of Internal Assessment examinations:

Sl. No	Exam	Theory	Practical including Viva	Signature of student	Signature of Teacher
1	I Internal Assessment	/100	/100		
2	II Internal Assessment	/100	/100		
3	III Internal Assessment	/200	/100		
4	Internal Assessment Marks	/400	/300		
5	Betterment Exam	/200	/100		
6	Final Internal Assessment	/400	/300		

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

BLDE (DU) UNIVERSITY
SHRI.B.M.PATIL MEDICAL COLLEGE
DEPARTMENT OF MICROBIOLOGY CURRICULUM

Goals:

1. To impart knowledge of the basic principles of bacteriology, virology, mycology, immunology and parasitology including the nature of pathogenic microorganisms, pathogenesis, laboratory diagnosis, transmission, prevention and control of diseases common in the country.
2. To produce next generation of global leaders in infectious disease.
3. To produce highly skilled & competent microbiologist to face emerging infectious disease threats.
4. To support our national needs of infectious disease diagnosis, outbreak investigations and preventive measures.

Objectives:

A MBBS student at the end of the microbiology course will be able to:

A. Knowledge

1. Describe the mechanisms of host parasite relationship.
2. Enumerate the normal flora and its importance in health and disease.
3. Describe the etiology and pathogenesis of common infectious diseases.
4. List the microbes that cause opportunistic infections in humans and describe their pathogenesis.
5. Explain the importance of National health programmes for the prevention of communicable diseases.
6. Understand the ecology (microbial) of specialized areas like hospital, water, food and prevent the possible spread of infections.

B. Skills

1. Choose appropriate laboratory investigations required for a clinical diagnosis.
2. Sample the right specimen, at the right time, by the right method.
3. Analyze and interpret the results of laboratory tests.
4. Choose the suitable antimicrobial agent for treatment.
5. Apply the principles of immunology in the pathogenesis, diagnosis and prevention of infectious and non-infectious diseases.
6. Practice the techniques of asepsis, antisepsis and sterilization in day-to-day procedures and apply universal precautions in laboratory and clinical practice.

C. Attitude and communication skills

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

1. Communicate effectively with peers and teachers in small group teaching learning activities.
2. Demonstrate the ability to work effectively with peers in a team.
3. Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers

Course Content, Teaching Learning Methods, Teaching hours and Student Assessment with certification

(As per the "Competency based Undergraduate Curriculum for the Indian Medical Graduate 2018: Medical Council of India)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
Topic: General Microbiology and Immunity		**Number of competencies: (11)**			**Number of procedures that require certification : (01)**				
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	S	P	Y	DOAP session	Skill assessment	5		
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Com Med
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussion , Case discussion	Written/ Viva voce/ OSPE		General Surgery	
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K	K	Y	Lecture, group Small discussion	Written/ Viva voce			Pharmac
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Patho
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce			Patho
MI1.9	Discuss the immunological basis of	K	KH	Y	Lecture	Written/ Viva voce		Paediatric	

	vaccines and describe the Universal Immunization schedule								
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	K	KH	Y	Lecture	Written/ Viva voce		Paediatric	
MI1.11	Describe the immunological mechanisms of transplantation and tumor immunity	K	KH	Y	Lecture	Written/ Viva voce			
Topic: CVS and Blood		**Number of competencies: (7)**			**Number of procedures that require certification : (NIL)**				
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, course treatment of the clinical course, diagnosis and prevention and common microbial agents causing Anemia	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	
MI2.7	Describe the epidemiology, the etio-pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology

Topic: Gastrointestinal and hepatobiliary system		**Number of competencies: (8)**			**Number of procedures that require certification : (NIL)**				
MI3.1	Enumerate the dysentery microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pharmac, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pharmac, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y	Lecture, group Small discussion	Written/ Viva voce		General Medicine	Pathology
Topic: Musculoskeletal system skin and soft tissue infections		**Number of competencies: (3)**			**Number of procedures that require certification : (NIL)**				
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis and etiopathogenesis, clinical course discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y	Lecture	Written/ Viva voce		Orthopaedics	
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
Topic: Central Nervous System infections		**Number of competencies: (3)**			**Number of procedures that require certification : (NIL)**				
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Patho
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Patho
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Pediatrics	
Topic: Respiratory tract infections		**Number of competencies: (3)**			**Number of procedures that require certification : (2)**				
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	SH	Y	DOAP session	Skill assessment		General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Genitourinary & Sexually transmitted infections		**Number of competencies: (3)**			**Number of procedures that require certification : (nil)**				
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology and OBG	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Topic: Zoonotic diseases and miscellaneous		**Number of competencies: (16)**			**Number of procedures that require certification : (01)**				
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis course, and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written		General Medicine	Patho
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Patho
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Com Med.	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Com Med.	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Com Med
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	Gen Surg	Com Med
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing infectious diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the	S	SH	Y	DOAP session	Skill assessment			

	detection of microbial agents causing Infectious diseases								
MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	DOAP session	Skill assessment			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	S	SH	Y	DOAP session	Skill assessment			
MI8.14	Demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y	DOAP session	Skill assessment		AETCOM	
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseas	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written/ Viva voce			

PRACTICAL DEMONSTRATION IN MICROBIOLOGY

I. SLIDES

1. Staphylococci
2. Streptococci
3. Gonococci
4. M. tuberculosis
5. M. Leprae
6. C. diphtheriae
7. T. pallidum
8. C. tetani
9. Negative Staining (Pneumococci)
10. Malarial parasite
11. Microfilaria
12. Cyclops
13. Hydatid cyst wall
14. Negri Bodies
15. Molluscum contagiosum
16. Rhinosporidiosis
17. Candida
18. Cryptococcus

19. Aspergillus
20. Penicillium
21. Mucor/Rhizopus
22. Pheumococci
23. Y. pestis
24. Mycetoma – H & E Stain
25. Cestode – Segment

II. MEDIA - 1. Without Growth

1. Peptone Water,
2. Nutrient broth;
3. Nutrient agar,
4. Blood agar,
5. Chocolate agar,
6. Mac Conkey agar
7. Wilson & Balir medium
8. T.C.B.S.,
9. L.J. Medium
10. Robertson Cooked meat medium
11. Milk agar,
12. Selenite F Broth,
13. Blood culture Broth
14. Loefflers Serum Slope.

III. MEDIA - With Growth

1. Staphylococcus – albus, aureus on Ntrient agar
2. Staphylococcus – albus, aureus on milk agar
3. Potassium tellurite medium with C. diphtheria
4. L.J. with M. tuberculosis
5. Mac Conkey with LF & NLF
6. Wilson & Blair with growth
7. TCBS with growth
8. Proteus – on Nutrient agar and swarming on Blood agar
9. Sugar fermentation – Indole – Negative & Positive
10. Urease – Negative & Positive
11. Citrate - Negative & Postive
12. Sabouraud's dextrose agar with Candida / Aspergillius
13. Sabourauds Dextrose agar with any Dermatophyte.

IV. LIST OF INSTRUMENTS

1. Seitz filter
2. Candle filter
3. Macntosh filde's jar

4. VDRL slide
5. Widal slide
6. Sterile swab
7. Tuberculin syringe
8. Microtitre plate
9. Inoculation loop,wire and spud
10. Pasteur pipette.
11. Co2 Jar

V. LIST OF SPECIMENS

1. Roundworm
2. Hookworm
3. Whip worm
4. Tapeworm
5. Hydatid cyst
6. Embryonated egg
7. Guinea worm

VI. EXPERIMENTAL ANIMALS

1. Rabbit
2. Guinea pig
3. Mouse
4. Rat

The students would perform the following procedures:

1. Hanging drop
2. Simple stain.
3. Gram stain,
4. Ziehl Neelsen stain
5. Albert stain
6. Wet mount for stool examination
7. Iodine mount for stool examination,
8. Donning and doffing of Personal Protective Equipment

Microbiology Integration Plan

Sl. No	Competency No	Topics	To be integrated with	Type of integration
1	MI1.7,1.10,1.11	Immunological mechanism in health, transplant rejection, cancer and immunological disorders	Pathology-PA7.5,9.1,9.3 Surgery-SU13.1,13.2	Pathology –Sharing and nesting Surgery- Sharing and nesting
2	MI18.13,18.15	Infectious disease &control measures	Community medicine-CM7.7,8.1	community medicine– Sharing and nesting
3	MI13.7,13.8	Hepatitis	General medicine- IM5.4, 5.14,5.17 Community medicine-CM3.3 Paediatrics-PE26.1,26.2,26.3	General Medicine - Sharing Nesting DOAP session Bedside clinic Community medicine-Sharing Paediatrics-sharing
4		Tuberculosis	Pathology-PA26.4 Pharmacology-PH1.45 General medicine- IM 3.7, 3.4.13,4.14,4.20, Paediatrics-PE34.1,34.2,34.3,34.4,34.5,34.6,34.7 Respiratory medicine-CT1.2,1.3,1.7	Pathology-Sharing Pharmacology-Sharing General medicine-nesting, sharing, Faculty presentation Bedside clinic, DOAP Session Paediatrics-Nesting, Sharing, Bedside clinic, faculty presentation
5		AIDS	Pathology-PA9.6 General medicine – IM 6.1,6.2,6.3,6.4,6.10,6.17,6.18,6.19 Pharmacology-PH1.48	Pathology-sharing Pharmacology – Faculty presentation General Medicine – Faculty presentation
6	MI2.5,2.6	Malaria	Pathology-10.1 General medicine-4.6,4.15,4.23,4.26 Pharmacology-PH1.47	Pathology-Sharing/Faculty presentation General medicine - Nesting/ faculty presentation , DOAP session Pharmacology-Sharing

7	MI15	Meningitis	Pathology-PA35.1,35.3 General medicine-IM17.7,17.8,17.9 Paediatrics-PE30.1,30.2,30.21	Pathology Nesting / sharing General medicine-DOAP Session, nesting Paediatrics- DOAP Session, nesting
8	MI1.6	Antimicrobials Rational use, Testing , resistances & antibiotic stewardship program	Pharmacology-PH1.43, General Medicine-IM3.3,13.12	Pharmacology-Sharing General Medicine-Bedside clinic, DOAP Session
9	MI14.3	Skin and soft tissue infections	Dermatology-DR6.1,7.1,7.2,8.1,9.1,12.715.215.3	Dermatology-Nesting/Sharing, Bed side clinic
10	MI14.2	Bone and soft tissue infections	1.Pathology-PA33.1 2.Orthopaedics-OR3.1	Pathology Nesting/Sharing Orthopaedics-Nesting/Sharing
11		Vaccines & National immunization programme	2 Paediatrics-PE19.1,19.219.3,19.4,19.5, 3. General medicine-IM3.19	Paediatrics-Nesting/Sharing General medicine-Sharing
12	MI13.2	Diarrheal disease	Pharmacology –PH1.47 General Medicine-IM16.1,16.13,16.8,16.11, Community medicine-CM3.3 Paediatrics-PE24.1,24.2,24.6,24.8	Pharmacology - Sharing General Medicine-Sharing/Nesting Community medicine-Nesting
13		Genitourinary tract infections and & Sexually transmitted disease	General surgery- SU29.3 Pharmacology-PH1.48 OBG Dermatology-DR10.6,10.7,10.8,11.111.211.3	General surgery-Sharing/Nesting Pharmacology-Sharing Dermatology-Sharing ,bedside clinic
14	MI12.1,12.3	Infective syndromes of heart	Pathology-PA27.4,27.6,27.10 General medicine-IM1.3,1.9,1.221.27,3.11,25.9	Pathology-Sharing General medicine-Nesting, sharing, DOAP Session
15		Respiratory tract infections	Pathology-PA26.1,26.2,26.3 General medicine-IM3.1,3.2,3.3,3.7	Pathology-sharing General medicine-Sharing, DOAP Session
16	MI1.5	Sterilization and disinfection	General surgery-SU14.1	General surgery-Nesting

Teaching Hours with Teaching Learning Methods

Teaching Learning Methods	Teaching Hours
Lectures	70 hrs
Practical	55 hrs
Small group teaching/Tutorials/Group Discussion	52hrs
Self Directed Learning (SDL)	10 hrs
AETCOM	3 hrs
Activities: Quiz, role play at the end of the year	

Microbiology topics with teaching hours and teaching learning methods

THEORY

Microbiology Syllabus	Duration	MCI Competency Number	Teaching Learning Method
Antigen	1	MI 1.8	Lecture
Introduction and History	1	MI 1.1	Lecture
Morphology of Bacteria	1	MI 1.1	Lecture
Physiology of Bacteria	1	MI 1.1	Lecture
Bacterial Genetics	1	MI 1.1	Lecture
Methods of gene transfer, Antimicrobial Agents, Antimicrobial Resistance	2	MI 1.6	Lecture
General Virology, Virus host interactions	2	MI 1.1	Lecture
Laboratory diagnosis of viral infections-microscopy, cultivation, serology, molecular tests	1	MI 1.1	Lecture
Introduction to Parasitology and Laboratory diagnosis of parasitic infections-	1	MI 1.1	Lecture
Molecular diagnostic methods	1	MI 1.1	Lecture
General Mycology and Laboratory diagnosis of fungal infections	1	MI 1.1	Lecture
Normal Microbial Flora of Human Body	1	MI 1.1	Lecture
Epidemiology of infectious diseases	1	MI 1.3	Lecture
Microbial infection and Pathogenesis	1	MI 1.1	Lecture
Immunity (Innate and Acquired)-Immunological	1	MI 1.7	Lecture
Components of Immune System-Organs, cells and products	2	MI 1.8	Lecture
Antibody	1	MI 1.8	Lecture
Antigen-Antibody Reaction	2	MI 1.8	Lecture
Complement	1	MI 1.8	Lecture
Immune Responses: Cell-mediated and Antibody-mediated	2	MI 1.8	Lecture

Hypersensitivity	1	MI 1.10	Lecture
Autoimmunity	1	MI 1.10	Lecture
Immunodeficiency Disorders	1	MI 1.10	Lecture
Transplant and Cancer Immunology	1	MI 1.11	Lecture
Immunoprophylaxis and Immunohematology	1	MI 1.9	Lecture
Enteric (typhoid) fever	1	MI 3.3	Lecture
Rickettsial infections	1	MI 1.1	Lecture
HIV	2	MI 2.7	Lecture
Dengue, chikungunya, and Zikavirus Other viral hemorrhagic fever- Kyasanuar forest disease, Ebola and Marburg virus, Hantaviruses	1	**MI 1.1**	Lecture
Malaria (in detail)	2	**MI 2.5**	Lecture
Lymphatic filariasis	2	MI 2.5	Lecture
Major etiological agents causing GIT infections **Shigellosis** **Nontyphoidal salmonellosis** **Diarrheogenic E.coli**	1	MI 3.1	Lecture
Cholera and halophilic Vibrio infections	1	MI 3.1	Lecture
Intestinal amoebiasis, Giardiasis	1	MI 3.1	Lecture
GIT/HB-3: Intestinal cestode and Trematode infections	1	MI 3.2, 8.15	Lecture
Major etiological agents causing hepatobiliary system Infections Echinococcosis (hydatid disease)	1	MI 1.1	Lecture
Major etiological agents of skin and soft-tissue, musculoskeletal systems Staphylococcal infections (detail)	1	MI 4.3	Lecture
Streptococcal infections	1	MI 4.3	Lecture
Gas gangrene (Clostridium perfringens) Tetanus (Clostridium tetani) Anthrax	2	MI 4.1	Lecture
Leprosy and NTM	1	MI 4.3	Lecture
Pseudomonas , Melioidosis, Actinomycetes and Nocardia	1	MI 4.3, 8.15	Lecture
Viral exanthems (in detail)- Measles, rubella, parvovirus, HHV-6, Pox viruses, Varicella zoster (chickenpox and zoster), Herpes simplex virus (in detail)	3	MI 4.3	Lecture
Superficial fungal infections Dermatophytes Subcutaneous mycosis Cutaneous and mucocutaneous candiasis	2	MI 4.3	Lecture
Agents of pyogenic meningitis: Neisseria meningitidis, Streptococcus pneumoniae, Streptococcus agalactiae, Haemophilus influenzae, Listeria	1	MI 5.1	Lecture

Agents of aseptic meningitis-1: Viral agents: (including polio, coxsackie virus, mumps)	1	MI 5.1	Lecture
Viral agents of encephalitis-2: Arboviral encephalitis (JE and Westnile), Nipah virus infection, Slow viral infections	1	MI 5.2	Lecture
Tetanus, botulism Neurocysticercosis	1	MI 4.1	Lecture
Major etiological agents of upper respiratory tract, Bacterial URTI: Diphtheria	1	MI 6.1	Lecture
Viral URTI-: Influenza virus, Parainfluenza virus, ,RSV, Coronavirus	1	MI 6.1	Lecture
Tuberculosis including non-tuberculous mycobacteria	2	MI 6.1	Lecture
Agents of atypical pneumonia(Bacterial): Mycoplasma, Chlamydia and Legionella	1	MI 6.1	Lecture
Agents of genital ulcers-1- Syphilis	1	MI 7.2	Lecture
Agents of genital ulcers-2- LGV, Granuloma inguinale, soft	1	MI 7.2	Lecture
Agents of vaginal discharge- Bacterial vaginosis,	1	MI 7.2	Lecture
STI (Gonorrhoea, Syphilis, Trichomonas, Candidia)	1	MI 7.1, 7.2	Lecture
Hospital acquired infections (surveillance and prevention including care bundle) – CAUTI, CRBSI, VAP, SSI	1	MI 8.5, MI 8.6	Lecture
Antimicrobial stewardship and Rational use of antimicrobial agents	1	MI 1.6	Lecture
Rabies	1	MI 8.1	Lecture
Anthrax, Plague, Leptospirosis	1	MI 8.1	Lecture
National health programs	1	MI 8.16	Lecture
Brucellosis	1	MI 8.1	Lecture
Babesiosis (in brief)		MI 1.1	Lecture (Integrated)
Hospital infection control covering Hand hygiene, PPE, BMW (and certification)	1	MI 8.7	Not applicable

PRACTICAL

Microbiology Syllabus	Duration	MCI Competency Number	Teaching Learning Method
Microscopy	1	MI 1.2	Practical
Sterilization and Disinfection	2	MI 1.4	Practical
Sterilization and Disinfection	1	MI 1.4, 1.5	Practical
Sterilization and Disinfection (including CSSSD visit)	1	MI 1.5	Practical
Culture Media	2	MI 1.1	Practical
Culture Methods	2	MI 1.1	Practical
Staining and HDP	4	MI 1.2	Practical
Specimen collection and transport	2	MI 8.10	Practical
Identification of Bacteria (Biochemical tests)	2	MI 1.1	Practical
Acid fast staining-1	1	MI 1.2	Practical
Antigen-Antibody Reaction (conventional)- agglutination and precipitation	1	MI 1.8, 8.15	Practical
Antigen-Antibody Reaction (newer)- ELISA, ELFA,CLIA, IFA,	1	MI 1.8, 8.15	Practical
Biomedical waste	1	MI 8.5,8.6	Practical
Needle stick injury	1	MI 8.5,8.6	Practical
Hand hygiene and universal precautions	1	MI 8.7	Practical
PPE	1	MI 8.7	Practical
Serological tests-RA,ASLO,CRP	2	MI 1.1 2.1 2.2	Practical
Widal test, Weil felix test, Blood culture	2	MI 3.3 1.1 3..3	Practical
HIV , Dengue, Chikungunya (Tridot, ELISA, Western blot, ICT Tests-Demonstration with case studies	2	MI 2.7,1.1 8.15	Practical
Demonstration of Parasitic slides- Malaria, Leishmaniasis, Lymphatic filariasis	2	MI 2.6, 8.15	Practical
Intestinal nematodes- Ascaris, Hookworm	2	MI 3.1	Practical
Stool microscopy-Demonstration of parasitic eggs and specimens	2	MI 1.2	Practical
Demonstration of characteristic features of Staphylococcal, Streptococcal infections and	2	MI 4.1, 4.3, 8.15	Practical
Gram staining	1	MI 1.2	Practical
Anaerobic infections	2	MI 4.3	Practical
Superficial and Subcutaneous fungal infections,	2	MI 4.3, 8.15	Practical
Virology case studies	2	MI 4.3	Practical
Infective syndromes of CNS and laboratory diagnosis (in brief)	2	MI 5.1	Practical

Demonstration of characters(beta hemolytic streptococci, Streptococcus pneumonia, diphtheria)	1	MI 6.2	Practical
Throat swab Gram staining-1,2,3 (smears made from S.pyogenes, C.diphtheriae Candidia) and certification	1	MI 6.2	Practical
Sputum Gram staining- (smears made from S.pneumoniae, Klebsiella , H. influenzae	1	MI 6.3	Practical
Sputum Acid fast staining-1,2,3 (smears made from 1+,2+,3+ sputum specimens) and certification	1	MI 6.3	Practical
LRTI (Pneumococcal pneumonia, Haemophilus influenzae , agents of atypical pneumonia)	1	MI 6.3	Practical
Fungal agents causing respiratory tract infection: zygomycosis, aspergillosis, pneumocystosis with case studies	2	MI 6.1	Practical
UTI (Uropathogenic E.coli, Klebsiella, Proteus, Enterococcus, Staphylococcus saprophyticus, Streptococus agalactiae)-Demonstration	2	MI 7.3	Practical
Demonstration of VDRL,RPR,TPHA	2	MI 7.2	Practical
Demonstrate confidentiality pertaining to patient's identity in lab result	1	MI 8.14	Practical/AETCO
Demonstrate respect for patient samples sent for lab investigations	1	MI 8.11	Practical/AETCOM

SMALL GROUP DISCUSSION

Microbiology Syllabus	**Duration**	**MCI Competency Number**	**Teaching Learning Method**
Normal commensals and defense mechanisms Infective syndrome of respiratory system and laboratory diagnosis (brief) **• URTI- Rhinitis (common cold), sinusitis, pharyngitis (sore throat), tonsillitis, laryngitis, laryngotracheobronchitis (croup), epiglottitis** **• LRTI- Bronchitis, bronchiolitis, pneumonia (CAP, HAP), pleural effusion, empyema**	2	MI 6.1	Practical/SGD
Microscopy	1	MI 1.1	SGD
Antimicrobial Susceptibility Testing	2	MI 1.6	SGD
Hospital acquired infection (definition, risk factors, hand hygiene and PPE)	2	MI 8.5,8.6, 8.7	SGD

Blood stream infections, sepsis, septic shock, CRBSI	1	MI 1.1	SGD
Infections of CVS (in detail)-Rheumatic fever and Infective endocarditis (including HACEK group) Other infections of CVS (in brief) - myocarditis and pericarditis, suppurative thrombophlebitis, infective endoarteritis, mycotic aneurysm, mediastinitis	1	MI 2.1, 2.2	SGD
Brucellosis,Plague Leptospirosis and Borreliosis	2	MI 8.1	SGD
Leishmaniasis	2	MI 2.5	SGD
Normal commensals **Gastrointestinal infective syndromes (in brief)** **-Diarrheal diseases- Diarrhea, gastroenteritis, dysentery,** **food poisoning , traveler's diarrhea** **-Acute vomiting** **Peritonitis and Intraperitoneal Abscesses** **-Infections of the liver and biliary system (liver abscess, cholangitis, cholecystitis)** **Pancreatic infection, splenic abscess, appendicitis, diverticulitis and typhlitis**	2	MI 3.1	SGD
Demonstration of characters of E Coli, Shigella, Salmonella, Vibrio	2	MI 3.2, 8.15	SGD
Helicobacter infection (acid peptic disease)	2	MI 3.6	SGD
Campylobacter infections, Yersinosis, Antibiotic associated diarrhea- Clostridiodes difficile	2	MI 3.1	SGD
Food poisoning- Bacillus cereus , Clostridium botulinum, Mycotoxins	2	MI 3.5	SGD
Viral gastroenteritis	2	MI 3.1	SGD
Intestinal nematodes - Enterobius,Trichuris and strongyloides	2	MI 3.1	SGD
Other parasitic infections of liver- amoebic liver abscess, Fasciola hepatica infection Parasitic infections infecting bile duct- Clonorchis,	2	MI 1.1	SGD
"Musculoskeletal System Infections **Infective syndromes of skin, soft tissue, musculoskeletal systems (in brief)"** **• Primary skin lesions: Macule, papule, plaque, nodule, vesicle, bulla, pustule , abscess** **• Secondary skin lesions: Scale, ulcer, erysipelas, impetigo, cellulitis, hidradenitis** **• Ecthyma** **• Warts** **• Hair follicle infections: Folliculitis, furuncle, carbuncle**	2	MI 4.1, 4.2, 4.3	SGD

• Subcutaneous tissue infections **• Infection of fascia and muscles: Necrotizing fasciitis, pyomyositis, myonecrosis** **• Lymphadenitis and lymphangitis** **• Skeletal system infections: Osteomyelitis and septic arthritis, orthopedic implant–associated infections** **• Miscellaneous: Burn Infections, bite infections, injection site abscesses, factitial disease (Self-induced abscesses)**			
Tissue nematode infections of skin and soft-tissue- Onchocerca, Loa loa, Mansonella and Dracunculus , Trichinella, cysticercosis, Larva migrans and other parasitic infections of lower animals infecting man	1	MI 4.3	SGD
Parasites causing encephalitis: Primary amoebic meningoencephalitis (Naegleria), granulomatous ameobic encephalitis (Acanthamoeba and Balamuthia), toxoplasmosis (in detail)	2	MI 5.2	SGD
Major etiological agents of lower respiratory tract **Agents of typical pneumonia:** **Pneumococcal pneumonia (in detail)** **Haemophilus influenzae (in detail)** **Bordetella infections(in detail)**	2	MI 6.1	SGD
Genitourinary Tract Infections And Sexually Transmitted Infections **Normal commensals of genitourinary tract and its laboratory diagnosis** **Urinary tract infections Agents of UTI: Uropathogenic E.coli, Klebsiella, Proteus, Enterococcus (in detail), Staphylococcus saprophyticus,** **Streptococus agalactiae**	2	MI 7.3	SGD
Sexually transmitted infections (in brief) **• Infections of the female reproductive organs: Urethritis, Vulvovaginitis, cervicitis, endometritis, oophoritis,** **salpingitis, tubo-ovarian abscess, pelvic inflammatory disease** **organs: Urethritis, Prostatitis, epididymitis, and orchitis** **Agents of urethritis- Gonorrhoea and non-gonococcal urethritis (including Chlamydia, Ureaplasma , HSV, Candida**	2	MI 7.1, 7.2	SGD
Environmental surveillance (bacteriology of water, air, milk and surface)	1	MI 8.8	SGD

Infective syndrmes of eye (in brief) • Conjunctivitis, keratitis, uveitis, endophthalmitis • Periocular/ periorbital Infections: • Eye lid infections (hordeolum, chalazion and marginal blepharitis) • Lacrimal gland infection (dacryoadenitis, canaliculitis and dacryocystitis) • Preseptal infection and orbital infections • Fusarium	1	MI 1.1	SGD
Infective syndrmes of ear, nose and oral cavity (in brief) • Ear infections: Otitis externa, otitis media, and mastoiditis • Nasal cavity infections: Rhinitis (common cold), sinusitis, turbinate hypertrophy • Oral cavity infections -Orofacial Odontogenic Infections: Dentoalveolar infections, gingivitis and periodontal infections, deep fascial space infections, suprahyoid space infections and infrahyoid space infections -Orofacial Nonodontogenic Infections: Infections of the oral mucosa (stomatitis and oral thrush), infections of the salivary gland, -Miscellaneous: Suppurative cervical adenitis, infected embryologic cysts, suppurative thyroiditis	1	MI 1.1	SGD
Zoonotic infections and Laboratory Diagnosis Congenital infections (TORCH)	2	MI 8.1	SGD
Opportunistic infections (immunocompromised patients) including Transplant infections	2	MI 8.2	SGD
Organisms of oncogenic potential	1	MI 8.3	SGD
Emerging and Re-emerging Infections Microbial agents of Bioterrorismry acquired infections	2	MI 8.4	SGD
Vector-borne infections	2	MI 1.1	SGD
Choose appropriate laboratory test in diagnosis of infectious disease (Rational use of microbiological investigations)	1	MI 8.13	SGD
Confidentiality pertaining to patient's identity in lab result	1	MI 8.12	SGD/AETCOM

SKILL CERTIFICATION: The list of certifiable skills is given below with number of sessions for skill certification (Procedures to be performed by students)

Competency No.	Topics	Number of Sessions
MI 1.2	Perform gram staining and interpret the result	02
MI 1.2	Perform Acid fast staining from the given sputum smear & interpret the result	02
MI 1.2	Stool-microscopic examination	02
MI 8.7	Hand hygiene and PPE	02

TEACHING AND LEARNING METHODOLOGY

1. **Second year duration:** The duration of second year is 12 months (11 month of teaching+ 1 month of university examination)

2. **Weeks available:** For second year MBBS undergraduate students teaching will go up to 11 months, followed by second year university examination. This means the second year duration is around 11 months, which equals to 335 days or nearly 48 weeks

3. **Teaching hours:** 190 hours

4. **Teaching learning methods (TLMs):** The various TLMs are:
   a) Lecture
   b) SDL (self-directed learning)
   c) SGD (small group discussion)

Weekly teaching hours: Four hours per week allotted to Microbiology.

a) **Morning sessions-** Two, one-hour lecture sessions in morning hours
b) **Afternoon sessions:** Two consecutive teaching hours in the afternoon, where half batch will come to Microbiology. In this duration, either SGD or practical or both (one-hour each) will be taken. The 2-hours slot of afternoon session will be allotted in two-days to cover the whole batch. Therefore, although total hours per week allotted to microbiology is 6 hours, total hours per student allotted to microbiology will be only 4 hours.

5. **Internal assessment:** The minimum number of internal assessment is three, including preliminary examination.

A. NEW TEACHING-LEARNING METHODS

1. Small group discussion (SGD)

Group of 12-15 students will be allotted per teacher. He will teach a topic in a small group, followed by discussion.

- **Active learning:** In SGD session, the interaction is bidirectional, and one-to-one; as students can freely ask their doubts and contribute their view-points. More discussion can happen in SGD than lecture as active learning is facilitated.

2. Self-directed learning (SDL)

SDL is a unique teaching-learning method where the students are asked to read the topics by themselves from book, internet search etc. SDL is implemented in medical education, since physicians need to be self-directed learners to maintain lifelong learning to obtain essential knowledge of their subjects in the ever-changing world of medicine.

- However the teacher can adopt any other method which can stimulate interest among students.
- **Seminar model:** Here, students can be asked to present various parts of topics and teacher can summarize/ reinforce each part at the end.
- **MCQ model:** In this format, the teacher can prepare 10-15 objective questions (one liner or MCQs) in such a way that it will cover the whole topic sequentially. Then he can ask the questions one by one to the whole batch and then summarize/reinforce/give explanation for each question.
- **Case scenario based:** The teacher can share a case scenario (with a set of questions covering the whole topic) at least one week prior and ask the students to do self-reading of the topic from books and then solve the case scenario. In the class room, the teacher can ask the students to solve the case scenario and then discuss related questions.

B. INNOVATIVE TEACHING METHODS

- Students will follow up the patients admitted in our teaching hospital to assess the therapeutic benefit received by them after Antibiotic sensitivity test report and correlate the report with the cases (ex-Staphylococcus aureus isolated in laboratory correlated with cases like abscess, folliculitis in surgery department)
- Students shall visit CSSD to study the method of cleaning and sterilization of instruments.
- Students shall visit biomedical waste management section to understand practical application of the segregation, treatment and disposable of waste generated in the hospital.

C. CURRICULAR ENRICHMENT:

- The students in the 2nd trimester of Phase II will be taken to the Molecular laboratory for giving the first hand exposure about PCR.

SCHEME OF EXAMINATION

INTERNAL ASSESSMENT

- Minimum number of assessment: **Three** including the Preliminary examination.
- Refer section II for general guidelines

Calculation of Internal Assessment

Theory (Maximum Marks)		**Practical (Maximum Marks)**	
Term and Theory Papers	50	Practical & Viva	15
Day to day assessment/seminars/research project	10	Journal/Record	05
Total	**60**		**20**

- Attendance requirement is 75% in theory & 80% in Practical for eligibility to appear for the university examination.
- Internal assessment will be based on competencies and skills.
- Importance will be given to day to day performance. 20% weight age will be given to day to day assessment (Performance in Periodic tests, MCQ, Participation in Seminars and Research Projects etc).
- Regular periodic Formative assessment examination will be conducted throughout the course. There will be **minimum three internal assessment examinations.** The **third internal examination** will be the **preliminary examination** & will be conducted on the lines of the **university examination.** Out of three internal assessment examinations an average of the two best internal examination scores will be considered. Marks obtained in day to day assessment will be added and the sum of these will be considered as the final internal assessment marks. The internal examinations will have MCQ (20% of total marks) in theory.
- The marks of internal examination for theory assessments will be calculated out of 60 marks, regardless of the maximum marks
- Day to day records and log book (including required skill certifications) will be given importance in internal assessment.
- Average of three practical examinations marks will be reduced to 15 and marks obtained for Practical Records will be reduced to 05. (Total 20 marks). The marks of internal examination for practical assessments will be calculated out of 20 marks, regardless of the maximum marks.
- Terminal practical examinations will be having OSPE in either internal assessment I or II exams.
- Only the final marks out of 60 (theory) and 20 (practical) will be submitted to the University, separately for theory and practical for each internal assessment.
- At least 35% marks of the total marks combined in theory and practical assigned for internal assessment has to be obtained to be eligible to appear for university

examinations. A candidate who has not secured requisite aggregate in the internal assessment may be permitted to appear for another internal examination as a remedial measure. If he/she successfully completes the remedial measures prescribed by the Institution / University as the case may be, only then he/she is eligible to appear for University Examination.

- The students should be made aware of the results of internal assessment.
- Students must secure **at least 50% marks** of the total marks(independently in theory and practical) assigned for internal assessment to be **declared successful** at the final university examination of that subject
- The Internal Assessment Marks both in theory and Practical obtained by the candidate will be sent to the University at least fifteen days prior to the commencement of Summative Theory Examinations.
- The Internal Assessment marks will be displayed on the notice board. The students will be shown their answer scripts. Their signatures will be taken against the marks obtained. The answer scripts will be stored in the respective department for 3yrs.

Internal assessment marks will not be added to University examination marks but will reflect as a separate head of passing at the summative examination

Topic distribution for internal assessment examinations

Theory	Topics	IA	Marks	Question types
1	General microbiology and immunology	IA- 1	50	**Long Essay Questions** 10 marks x 1 **Short Essay Questions** 5 marks x 3 **Short answers Questions** 3 marks x5 **MCQ's** 1 mark x 10
2	Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system Infections of skin, soft tissue and musculoskeletal system, and central nervous system Infections of respiratory system, genitourinary and sexually-transmitted infections, hospital infection and control, zoonotic and miscellaneous	IA-2	50	**Long Essay Questions** 10 marks x1 **Short Essay Questions** 5 marks x 3 **Short answers Questions** 3 marks x5 **MCQ's** 1 mark x 10

3	General microbiology and immunology Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system Infections of skin, soft tissue and musculoskeletal system, and central nervous system Infections of respiratory system, genitourinary and sexually-transmitted infections, hospital infection and control, zoonotic and miscellaneous	Preliminary (paper I & II)	200	Same as University Examination
Practical	**Topics**			
1	Spotters	IA 1	10	25 Marks
2	Gram staining		15	
2	Acid fast staining	IA 2	15	25 Marks
3	Stool examination		05	
4	Hospital infection control (hand hygiene, biomedical waste)		05	
5	Spotters, Gram staining, Acid fast staining ,Stool examination Hospital infection control (hand hygiene, biomedical waste), Clinical microbiology applied exercise Based on clinical infective syndromes such as (Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system, skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary system	**Preliminary Exam**	**60**	**60 Marks**
Viva voce				
1	Viva voce - 1 General microbiology, immunology and Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system		20	
2	Viva voce-2 Infections of skin, soft tissue and musculoskeletal system, and central nervous system, respiratory system, genitourinary and sexually-transmitted infections, hospital infection and control, zoonotic and miscellaneous		20	
3	Preliminary examination viva voce (I and II)		20	Same as university Examination

UNIVERSITY EXAMINATION

Theory (maximum marks)		**Practical (maximum marks)**	
Paper I	100	Practical exam	60
Paper II	100	Viva Voce	40
Total	200	Total	100

A. THEORY: 200 Marks

There shall be two theory papers of 100 marks each and duration of each paper shall be 3 hours. The pattern of questions in each paper shall be as mentioned below.

Type of Question	**Number of Question**	**Maximum marks for each question**	**Total**
Multiple choice question (MCQ)	20	01	20
Long essay questions (LEQ)	2	10	20
Short Essay questions (SEQ)	06	05	30
Short answer questions (SAQ) -	10	03	30
		Total Marks	**100**

B. Practical: 60 Marks

This part will include assessment of clinical and procedural skills & will be based on direct observation by the examiner.

C. Viva - Voce Examination: 40 Marks.

Topic distribution of Theory Assessment for University Examination

Theory	Subject	Marks	Question types
Paper-I	General Microbiology, Immunology, Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system	**100**	**In each section** • **Long Assay Questions** 10 marks x 2 • **Short Assay Questions** 5 marks x 6 • **Short answers Questions** 3 marks x10 • **MCQ's** 1 mark x 20 **Total=100 marks** **One short note (5marks) in Paper I and II may be modified to cover AETCOM module (total 10 marks)**
Paper-II	Infections of skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary and sexually transmitted infections, hospital infection and control, zoonotic and miscellaneous	**100**	

Proportion of Marks distribution (THEORY)

- General Microbiology (25 marks)
- Immunology (25 marks)
- Bacteriology (45 marks)
- virology(30 marks)
- Parasitology (25 marks)
- Mycology (15 marks),
- Hospital infection control (15 marks),
- Miscellaneous (10 marks)
- AETCOM (10 marks)

Topic distribution for Practical Assessment for University Examination

Practical	**Marks**
Practical	**60 Marks**
Spotters	10
Gram-staining	10
Acid-fast staining	10
Stool examination	5
Hospital infection control (hand hygiene, biomedical waste)	5
Clinical microbiology applied exercise Based on clinical infective syndromes such as (Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system, skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary system)	10 Marks x 2 exercises = 20
Viva voce	**40 Marks**
Viva voce-I: General Microbiology, Immunology,	10 marks
Viva voce-II: Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system	10 marks
Viva voce-III: Infections of skin, soft tissue and musculoskeletal system, central nervous system, respiratory system	10 marks
Viva voce-IV: Genitourinary and sexually- transmitted infections, hospital infection and control, zoonotic and miscellaneous	10 marks
Total	**100**

CRITERIA FOR PASSING UNIVERSITY EXAMINATION

- The student must secure at least 40% marks in each of the two theory papers with minimum 50% of marks in aggregate (both papers together) to pass.
- The marks obtained in the viva examination will be added to the practical marks.
- The student must secure a minimum of 50% of marks in aggregate in the viva and practical examination (both combined) to pass.
- Students must secure at least 50% marks of the totally marks (combined in theory & practical) assigned for Internal assessment to be declared successful at the final university examination of that subject.

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.

RECOMMENDED BOOKS (Recent Editions)

1. Ananthanarayan: (Ananthanarayan and Jayaram Paniker's) Textbook of Microbiology, Et. & Orient Longmen Ltd., Chennai.
2. Textbook of Microbiology (Prof. C.P.Baveja) Arya publications New Delhi, Fourth edition.
3. Textbook of Microbiology (Dr. D.R. Arora) CBS publications New Delhi, third edition.
4. Jawetz (Melnick) et al, Medical Microbiology, ed Z Appleton and Lange, USA.
5. Chatterjee (KDC), Parasitology, Chatterjee Medical Publishers, Clacutta
6. Paniker (C.K.Jayaram), Text book of Medical Parasitology, Jaypee, New Delhi.
7. Textbook of Medical Parasitology by P. Chakraborthy new central book agency Ltd. Kolkata

REFERENCE BOOKS:

1. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
2. Roitt (Ivan.M), Essential Immunology, Ed.6, ELBS, Hong Kong.
3. Mims (Cedric, Playfair) et al, Pathogenesis of Infectious diseases, Academic Press, London.
4. Stites (Terr and Parslow), Medical Immunology, Appleton and Lange USA.
5. Mendell (Donerglas Aan Benett), Principles and Practice of Infections diseases, Churchill Livingstone
6. Bailey and Scott, Diagnostic Microbiology, Mosby Publishers
7. Mackie & Macartney – Vol II (Collee & Duguid) et al, Churchill Livingstone.
8. Basic Laboratory Procedures in Medical Parasitiology, WHO.
9. Basic Laboratory Procedures in Medical bacteriology WHO

BLDE (DU) UNIVERSITY
SHRI.B.M.PATIL MEDICAL COLLEGE
DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY

CURRICULUM

Goals:

The broad goal of the teaching undergraduate student in Forensic Medicine is to produce a physician who is well informed about medico legal responsibilities in practice of medicine. He/She acquires knowledge of law in relation to medical practice, medical negligence and respect for codes of medical ethics.

Objectives:

Knowledge:

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

1. Identify the basic medico legal aspects of hospital and general practice.
2. Define the medico legal responsibilities of a general physician while rendering community service either in a rural primary health centre or an urban health center.
3. Be able to identify, examine and prepare report or certificate in medico legal cases/situations in accordance with the law of land.
4. Able to perform medico legal postmortem and interpret findings and results of other relevant investigations to logically conclude the cause, manner and time since death.
5. Be aware of medical ethics, etiquette, duties, rights, medical negligence and legal responsibilities of the physicians towards patient, profession, society, state and humanity at large.
6. Be aware of relevant legal / court procedures applicable to the medico legal / medical practice.

Skills:

1. Make observations and logical inferences in order to initiate enquiries in criminal; matters and medico legal problems.
2. Diagnose and treat common emergencies in poisoning and manage chronic toxicity.
3. Make observations and interpret funding at postmortem examination.
4. Observe the principles of medical ethics in the practice of his profession
5. Be able to preserve and dispatch specimens in medico legal / postmortem cases and other concerned materials to the appropriate government agencies for necessary examination.

Course Content, Teaching Hours, Teaching Learning Methods and Student Assessment

	Lectures	**SGL (Tutorial/Seminars/ IT)**	**SDL**	**AETCOM**	**Total Hours**
2nd Professional (3rd& 4thSemester)	15	30	5	7	57
3rd Professional Part I (5th Semester)	13	22	5	2	42
3rd Professional Part I (6th Semester)	12	23	-	-	35
Total	**40**	**75**	**10**	**9**	**134**

Course Content, Teaching Learning Methods and Student Assessment:

(As per the "Competency based Undergraduate Curriculum for the Indian Medical Graduate 2018: Medical Council of India")

Integration:

Department shall provide an integrated approach towards allied disciplines like 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.

1. **Sudden Death:**

- Clinical features by (Medicine)
- Histopathological examination of Heart by (Pathology)
- Postmortem findings and Medico legal importance of sudden death (FMT)
- Coordinating Department: **Medicine**

2. **Suspected Unknown Compound Poisoning:**

- Clinical features and management of SUCP by (Medicine)
- Detection and information about poisons by (Forensic Medicine & Toxicology)
- Coordinating Department: **Medicine**

3. **Mechanical Injury:**

- Appearance and depth of various wounds produce by physical violence by (Surgery)
- Medico legal Importance of various wounds by (Forensic Medicine & Toxicology)
- Coordinating Department: **Surgery**

4. **Burns:**

- Appearance of burns injuries and management by (Surgery)
- Medico legal aspect of burn injury by (Forensic Medicine & Toxicology)
- Coordination Department: **Surgery**

5. POCSO Act:

- Genital examination in case of sexual violence against women by (OBG)
- Documentation and submission of data to the court of law by (Forensic Medicine & Toxicology)
- Counseling of victim as well as accused by (Psychiatry)
- Coordination Department: **OBG**

Course Contents, Teaching Learning Methods and Students Assessment:

Theory:

I. Forensic medicine:

Must know:

1. History of Forensic Medicine, Definition of forensic medicine and medical jurisprudence, Medical Etiquette.
2. Courts in India and their powers: Supreme Court, High Court, Sessions Court, Additional sessions court, magistrate's court.
3. Court procedures : Summons, conduct money, oath, affirmation, perjury, types of witness, types of examination, recording evidence, court questions, conduct of doctor in witness box, medical examiner system.
4. Medical certification and medico legal reports including dying declaration.
5. Death:
   a) Definition, types: somatic, cellular and brain death.
   b) Natural and unnatural death.
   c) Presumption of death and survivorship.
   d) Suspended animation.
   e) Death certification, cause of death as per international classification of diseases – WHO guidelines.
6. Changes after death:
   a) Cooling of body, Lividity, Rigor mortis, cadaveric spasm, cold stiffening and heat stiffening.
   b) Putrefaction, mummification, adipocere and maceration.
   c) Estimation of time of death.
   d) Embalming.
7. Inquest by police and magistrate.
8. Identification.
   a) Definition, corpus delicti
   b) Identify of living persons; race, age, sex, religion, complexion, stature.
   c) Identification of criminals, unknown persons, dead bodies and remains of persons by: hair fiber, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy, DNA finger printings, Super-imposition.
9. Examination of mutilated human remains; Skeletal remains; and exhumation.
10. Medico legal autopsies :
    a) Definition of a medico legal post mortem.

b) Difference between pathological and medico legal post mortem.
c) Objectives, procedures, formalities of medico legal autopsies.
d) Obscure autopsy
e) Special procedures in suspected poisoning.
f) Precautions in autopsy of HIV infected body, radiation injury.

11. Mechanical injuries and wounds:
    a) Definition, classification and differentiation of abrasion, contusion, laceration, chop wounds, incised wounds, stab wounds.
    b) Accidents due to vehicles; Primary and secondary impact injury crush syndrome, reconstruction of accidents, railway injuries.
    c) Differences between ante mortem and postmortem injuries.
    d) Weapons; weapons, dangerous weapons and elementary ballistics.
    e) Wounds due to weapons; Injuries by dangerous weapons, fire arm wound blast injuries, stab wounds, incised wound, defense cuts, hesitation cuts self inflicted injuries, fabricated wounds.
    f) Workman's compensation act.
    g) Justifiable homicide, culpable homicide and grievous injury.
12. Examination of an injury case:
    a) Differences between accidental; suicidal and homicidal injuries.
    b) Types of injuries: simple and grievous.
    c) Wound as a cause of death: primary, secondary.
    d) Situation and character of wounds: number, direction, extent and age of injury.
    e) Injuries of various sites.
    f) Head: Scalp wounds, fracture of skull, coup, contra coup injuries.
    g) Intracranial haemorrhages, its location and extent. Injury to brain, spinal cord, Thoracic, Abdominal Pelvic viscera,

Wound Certification:

1. Injuries due to physical agents, and their medicolegal importance; cold, heat burns, electricity and lightning.
2. Asphyxial deaths: definitions, causes, types, post mortem appearance and medico legal significance of suffocation, drowning, hanging, throttling, strangulation. Traumatic asphyxia, drowining, Lynching, judicial hanging, bansdola.
3. Death due to malnutrition, neglect.
4. Dowry deaths.
    a) Virginity: Definition and signs. Defloration
    b) Sexual Offences: Rape, Definition, examination of victim and the accused in case of rape, gang rape, custodial rape. Incest, Unnatural Offences – Tribdism, Bestiality, Buccal Coitus, Sodomy.
5. Legitimacy, paternity, disputed paternity, medicolegal significance of impotence. Sterility and artificial insemination; supper-foetation and super-fecundation; atavism; sterilization.

6. Pregnancy and delivery: Pregnancy: signs of pregnancy in the living and in the dead, Delivery: signs of recent and remote delivery in the living and in the dead; Abortion: natural and artificial therapeutic miscarriage; complications of abortion; investigation in deaths due to abortion. Medical termination of pregnancy act of 1971.
7. Infanticide: Definition and Medico legal consideration: viability; determination of the age of the foetus' method of demonstration of centres of ossification rule of Haase, signs of live birth; Hydrostatic test. Maceration, post – mortem finding to differentiate still birth from a live birth. Battered Baby syndrome and Munchausen syndrome by proxy. Sudden infant death and cot death, Precipitate labour.
8. Biological fluids: examination, preservation, dispatch and identification of blood stains by micro chemical, spectroscopic and precipitation test. Blood grouping in disputed paternity; group specific substances;. Hazards of blood transfusion.
9. Seminal stains: examination, identification, collection, preservation, dispatch.
10. Bio-medical Waste: Types, potential risks and their safe management.

Desirable to know:
Brief update on recent advances: HLA typing, DNA typing.

II. Forensic Psychiatry:

Must know:

1. Definition, types of mental disorders, lucid interval.
2. Mental Health Act (1987).
3. Diagnosis of Mental illness and feigned mental illness.
4. Testamentary capacity, restraint, insanity with reference to civil and criminal responsibilities, doctrine of diminished responsibility, McNaughten's rule.

III. Medical Jurisprudence:

1. Indian Medical Council and State Medicals Councils: their disciplinary control
2. Indian Medical Register rights and privileges of egistered medical practitioner, penal erasure, infamous conduct, and disciplinary committee.
3. Code and law of medical ethics, unethical practice, dichotomy, consumer protection act
4. Professional secrecy, privileged communication.
5. Malpractice; civil, criminal and ethical.
6. Consent, negligence, vicarious liability, the doctrine of Res Ipsa Loquitur, contributory negligence. *Consumer* Protection Act.
7. Duties of a medical practitioner towards his patient and the society.
8. Human organ Transplantation Act of 1994.
9. PNDT Act. (Revised 1994)
10. Sex determination by Amniocentesis.
11. Euthanasia.
12. Torture medicine
13. The Biomedical Waste (Management & Handling) (Second Amendment) Rules, 2000.

IV. Toxicology:

Must know

1. General aspects of poisoning:
   Duties of doctor in cases of poisoning, medico legal autopsy in poisoning, preservation and dispatch of viscera for chemical analysis. Role of Forensic Science laboratory. Laws related to poisons.
2. Types of poison, diagnosis, principles of therapy and medico legal aspects of:
   a) Corrosive poisons; strong mineral acids like carbolic acid, oxalic acid, Sulphuric acid, Nitric acid, Hydrochloric acid, Alkalies.
   b) Metallic poisons: Lead, Mercury, Copper, Arsenic.
   c) Animal poisons: Snakes, Scorpions, Bees, Wasps.
   d) Deliriants: Dhatura, Cannabis and Cocaine
   e) Somniferous agents: Opium, Morphine and Pethidine
   f) Inebraints: Methyl and ethyl alcohol.
   g) Gaseous poisons: Carbhon monoxide, carbon dioxide, War gases.
   h) Anaesthetic agents: Chloroform and ether.
   i) Cardiac poisons: Aconite, Cerebra thevatia and neriumodorum, Oleanders, Hydrocyanic acid.
   j) Miscellaneous: Aspirin, Paracetamol, Barbiturates, Diazepam and Antihistamines
   k) Insecticides: Organophosphorous compound, Endrin, Kerosene, turpentine, Rodenticides.
   l) Food poisoning: Botulism.
   m) Organic vegetables: Abrus, Calotropis.

Desirable to know:

1. Inorganic non metallic poisons: phosphorous.
2. Metallic poisons: Antimony, Nitrites and Arsenic
3. Vegetable Alkaloids.
4. Spinal poisons : strychnine
5. Paralytic agents.
6. War gases and industrial gases : MIC
7. Sedatives; Chloral hydrate and Bromides.
8. Mechanical Poisons.
9. Drug Dependence.

Practicals:

1. Demonstration of ten medico legal autopsies
2. Age estimation from bones, x-rays, dentition
3. Injuries and weapons
4. Examination of intoxicated persons
5. Possible videotape of examination of victim and accused in sexual offences
6. Specimens of poisons

Desirable to know:

OSPE & MCQ Test.

Skills:

1. Examine & prepare certificates in the following medico-legal situations:
   a) injured patient
   b) sexual offences
   c) determination of age
   d) intoxicated patient
2. Prepare proper certificates of birth and death.
3. Prepare dying declaration
4. Give evidence in a court of law as an expert witness collect and do proper labeling, preservation and dispatch of medico-legal specimens
5. Witness and record the finding and issue a report for a medico legal autopsy
6. Diagnose and manage common acute and chronic poisonings

Practical Exercises:

1. Medico Legal Autopsies – Witnessing and recording (10 cases)
2. Age estimation of an individual by Physical, Dental and Radiological examination.
3. Examination of skeletal remains
4. Study of:
   a) Lethal Weapons
   b) Wet specimen/models/Photography/Micro slides – Like sperms, Diatoms, Hairs, Human & Animal RBCs.
   c) Poisons
5. Medical certificates/ Medico-legal reports, Physical fitness, sickness and death certificates, injury report, drunkenness, sexual offences.
6. Students should be taken to courts whenever possible to acquaint themselves with the court proceedings.

Note: Practical Exercises conducted shall be entered in the practical record book edited and published by Karnataka Medico legal society.

Teaching Hours:

Sl. No	No of Classes	Topics
1	01	Introduction to Forensic Medicine
2	03	Legal Procedure
3	04	Thanatology
4	02	Medico legal Autopsy
5	03	Identification
6	04	Medical Law & Ethics
7	03	Mechanical Injuries
8	03	Firearms,
9	03	Thermal Injuries

10	03	Regional Injuries
11	03	Medico legal aspects of wounds
12	03	Mechanical Asphyxia
13	01	Drowning
14	02	Sex related offences, Rape, Pasco Act Unnatural sex offences Perversions
15	02	Impotency, Sterility, Virginity
16	01	Pregnancy, Delivery
17	01	Abortions and MTP Act
18	02	Infanticide
19	03	Forensic Psychiatry,
20	03	General Principles of Toxicology
21	02	Corrosive Poison
22	02	Inorganic Irritants
23	03	Plant Poisons & Animal Poison
24	03	Agricultural Irritant Poison
25	03	Cerebral, Stimulant, Depression, Delirient (Datura, Cannabis, Cocaine & Inebriant Poison)
26	01	Somniferous Poison, Drug addiction dependent.
27	01	Spinal Poison
28	01	Cardiac Poison
29	03	Asphyxiants
30	01	Food Poisoning

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: General Information		**Number of competencies: (11)**			**Number of procedures that require certification: (NIL)**				
FM1.1	Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.2	Describe history of Forensic Medicine	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.3	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	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.4	Describe Courts in India and their powers: Supreme Court, High Court, Sessions court, Magistrate's Court, Labour Court, Family Court, Executive Magistrate	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			

	Court and Juvenile Justice Board								
FM1.5	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	K	KH	N	Lecture, Small Group Discussion, Moot Court	Written/ Viva voce			
FM1.6	Describe Offenses in Court including Perjury; Court strictures vis-avis Medical Officer	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.7	Describe Dying Declaration & Dying Deposition	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.8	Describe the latest decisions/ notifications/resolutions/circulars/ standing orders related to medico-legal practice issued by Courts/ Government authorities etc.	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.9	Describe the importance of documentation in medical practice in regard to medico legal examinations, Medical Certificates & medico legal reports especially maintenance of patient case records, discharge summary, Prescribed registers to be maintained in Health Centres. Maintenance of medico-legal register like accident register. Documents of issuance of wound certificate documents of issuance of drunkenness certificate. Documents of issuance of sickness and fitness certificate. Documents for issuance of death certificate. documents of Medical Certification of Cause of Death - Form Number 4 and 4A documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Radio diagnosis General Surgery, General Medicine Pediatrics	
FM1.10	Select appropriate cause of death in a particular scenario by referring ICD 10 code	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.11	Write a correct cause of death certificate as per ICD 10 document	S	SH	Y	Lecture, Small Group Discussion	Written/ Viva voce			

Topic: Forensic Pathology		**Number of competencies: (35)**			**Number of procedures that require certification : (NIL)**				
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Pathology	
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.3	Describe & discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		AETCOM	
FM2.5	Discuss moment of death, modes of death - coma, asphyxia and Syncope	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Psychiatry Pathology	
FM2.6	Discuss presumption of death and survivorship	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM2.7	Describe and discuss suspended animation	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM2.8	Describe and discuss postmortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.9	Describe putrefaction, mummification, adipocere and maceration	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.10	Discuss estimation of time since death	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group	Written/ Viva voce		Pathology	

					discussion				
FM2.14	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artefacts	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.15	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per National Human Rights Commission Guidelines	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.16	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ OSPE			
FM2.17	Describe and discuss exhumation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.18	Crime Scene Investigation:- Describe and discuss the objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.20	Mechanical asphyxia: Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in as phyxial deaths	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.21	Mechanical asphyxia: Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging & strangulation including examination, preservation and dispatch of ligature material	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.22	Mechanical asphyxia: Describe & discuss patho-physiology, clinical features, postmortem findings and medico-legal aspects of traumatic	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			

	asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia								
FM2.23	Describe and discuss types, patho-physiology, clinical features, postmortem findings and medico-legal aspects of drowning, diatom test and, gettler test.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.24	Thermal deaths: Describe the clinical features, post-mortem finding and medicolegal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/ prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce			
FM2.25	Describe types of injuries, clinical features, patho-physiology, postmortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM2.26	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce			
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden Infants Death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pediatrics, Human Anatomy	
FM2.29	Demonstrate respect to the directions of courts, while appearing as witness for recording of evidence under oath or affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence	A& C	SH	Y	Lecture, Small group discussion, Moot Court, Court visits, Role Play	Role Play during internal assessment			
FM2.30	Have knowledge/awareness of latest decisions/ notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/ Government authorities etc	A	K	Y	Lecture/ Small group discussion	Written/ Viva voce			
FM2.31	Demonstrate ability to work	A	KH	Y	Lecture,	Written/			

	in a team for conduction of medico-legal autopsies in cases of death following alleged negligence medical dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation				Small group discussion, Autopsy, DOAP session	Viva voce/ OSPE			
FM2.32	Demonstrate ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A & C	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Community Medicine	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		General Medicine, AETCOM	
FM2.35	Demonstrate professionalism while conducting autopsy in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A & C	KH/SH		Lecture, small group discussions, DOAP session	Written/ Viva voce/ OSPE		AETCOM	
Topic: Clinical Forensic Medicine		**Number of competencies:(33)**			**Number of procedures that require certification: (NIL)**				
FM3.1	Identification Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico legal aspects of age	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/ skill assessment		Human Anatomy	
FM3.2	Identification Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy and superimposition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self inflicted/ fabricated wounds and their	K	KH	Y	Lecture, Small group discussion Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery	

	medico-legal aspects								
FM3.4	Mechanical injuries and wounds: Define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.5	Mechanical injuries and wounds: Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.6	Mechanical injuries & wounds: Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopedics	
FM3.8	Mechanical injuries & wounds: Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopedics	
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopedics	
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of fire arm injuries, blast injuries & their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/ OSCE		General Surgery, Orthopedics	
FM3.11	Regional Injuries:Describe & discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/ OSPE		General Surgery, Orthopedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from	K	K/KH	Y	Lecture, Small group discussion,	Written/ Viva voce/ OSCE/		General Surgery, Orthopedics	

	height and vehicular injuries – Primary & Secondary impact, Second aryinjuries, crush syndrome, railway spine				Bed side clinic or autopsy, DOAP session	OSPE			
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section375 IPC), Punishment for Rape (Section 376 IPC) & recent amendments notified till date	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE/ OSPE		Obstetrics & Gynecology	
FM3.14	Sexual Offences Describe& discuss the examination of the victim of an alleged case of rape & the preparation of report, framing the opinion & preservation & dispatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE/ OSPE		Obstetrics & Gynecology, Psychiatry	
FM3.15	Sexual Offences Describe & discuss examination of accused & victim of sodomy, preparation of report, framing of opinion, preservation & dispatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE/ OSPE		Obstetrics & Gynecology, Psychiatry	
FM3.16	Sexual Offences Describe and discuss adultery and unnatural sexual offences, sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault & preparation of report, framing the opinion & preservation & despatch of trace evidences in such cases	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, Psychiatry	
FM3.17	Describe & discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medico legal importance	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
FM3.19	Discuss the medico legal aspects of pregnancy & delivery, signs of pregnancy, precipitate labour super foetation, super fecundation & signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	

FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques(PC&PNDT) - Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Obstetrics & Gynecology	
FM3.24	Discuss the relative importance of surgical methods of contraception(vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/KH	N	Lecture/ Small group discussion	Written		Obstetrics & Gynecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynecology	
FM3.26	Discuss the national Guidelines for accreditation, supervision &regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion. MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynecology, AETCOM	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM3.30	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequalae, management of torturesurvivors	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.31	Torture and Human rights Describe and discuss guidelines and Protocols of National Human Rights	K	K/KH	N	Lecture/ Small group discussion	Written/ Viva voce			

	Commission regarding torture								
FM3.32	Demonstrate the professionalism while preparing reports in medico-legal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A & C	SH	Y	Lecture, Small group discussion	OSPE/Viva voce		AETCOM	
FM3.33	Should be able to demonstrate the professionalism while dealing with victims of torture and human right violations, sexual assaults psychological consultation, rehabilitation	A & C	K/KH/ SH	Y	Lecture/ Small group discussion	Written/ Viva voce		AETCOM	
Topic: Medical Jurisprudence (Medical Law and ethics		**Number of competencies: (30)**			**Number of procedures that require certification : (NIL)**				
FM4.1	Describe Medical Ethics and explain its historical emergence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.3	Describe the functions and role of Medical Council of India and State Medical Councils	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.4	Describe the Indian Medical Register	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.5	Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.7	Describe and discuss the ethics related to HIV patients	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.8	Describe the Consumer Protection Act-1986 (Medical Indemnity Insurance, Civil Litigations and Compensations), Workman's Compensation Act & ESI Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.10	Describe communication	K	KH	Y	Lecture,	Written/		AETCOM	

	between doctors, public and media				Small group discussion	Viva voce			
FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM Pharmacology	
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.13	Describe social aspects of Medico-legal cases with respect to victims of assault, rape, attempted suicide, homicide, domestic cviolence, dowry- related cases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management –Human behavior, communication skills, conflict resolution techniques	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.16	Describe and discuss Bioethics	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-malfeasance, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.20	Describe therapeutic privilege, Malingering, Therapeutic Misadventure, Professional Secrecy, Human Experimentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.21	Describe Products liability	K	KH	Y	Lecture,	Written/		AETCOM	

	& Medical Indemnity Insurance				Small group discussion	Viva voce			
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor-patient relationship: professional secrecy and privileged communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time	A & C	SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.29	Demonstrate ability to communicate appropriately with media, public and doctors	A & C	KH/ SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.30	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A & C	KH/ SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
Topic: Forensic Psychiatry		**Number of competencies: (06)**			**Number of procedures that require certification: (NIL)**				
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.2	Define, classify & describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe Civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

	discharge of a mentally ill person								
Topic: Forensic Laboratory investigation in medical legal practice		**Number of competencies: (03)**			**Number of procedures that require certification: (NIL)**				
FM6.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces, saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM6.2	Describe the methods of sample collection, preservation, labeling, dispatch, and interpretation of reports	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM6.3	Demonstrate professionalism while sending biological or trace evidences to Forensic Science lab, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A & C	KH/SH	Y	Lecture, Small group discussions, DOAP sessions	Viva voce / OSPE			
Topic: Emerging technologies in Forensic		**Number of competencies: (01)**			**Medicine** **Number of procedures that require certification:(NIL)**				
FM7.1	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling - Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, - Digital autopsy, - Virtual Autopsy, - Imaging technologies	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology: General Toxicology		**Number of competencies: (10)**			**Number of procedures that require certification: (NIL)**				
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics, and Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

	poisons								
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion, Bed sideclinic, DOAP session	Written/ Viva voce/ OSPE		Pharmacology	
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSPE		Pharmacology General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSPE		Pharmacology General Medicine	
FM8.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and despatch of relevant samples for laboratory analysis.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM8.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology : Chemical Toxicology		**Number of competencies: (06)**			**Number of procedures that require certification : (NIL)**				
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic- sulphuric, nitric, & hydrochloric acids; Organic-Carbolic Acid (phenol), Oxalic and acetylsalicylic acids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning:	K	K/KH	Y	Lecture, Small group discussion,	Written/ Viva voce/		Pharmacology General Medicine	

	decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium				Bed side clinic, Autopsy, DOAP session	OSCE			
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	
Topic: Toxicology : Pharmaceutical Toxicology		**Number of competencies: (01)**			**Number of procedures that require certification : (NIL)**				
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Antipyretics – Paracetamol, Salicylates Anti-Infectives (Common antibiotics – an overview) Neuro psycho toxicology Barbiturates, benzodiazepins, phenytoin, lithium, haloperidol, neuroleptics, tricyclics Narcotic Analgesics,	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology General Medicine	

	Anaesthetics, & Muscle Relaxants Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis Gastro-Intestinal and Endocrinal Drugs – Insulin								
Topic: Toxicology : Bio toxicology		**Number of competencies: (01)**			**Number of procedures that require certification : (NIL)**				
FM11.1	Describe features & management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group Discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Socio medical Toxicology		**Number of competencies: (01)**			**Number of procedures that require certification : (NIL)**				
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent	K	K/KH	Y	Lecture, Small group Discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Environmental Toxicology		**Number of competencies: (02)**			**Number of procedures that require certification : (NIL)**				
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group Discussion	Written/ Viva voce		General Medicine	
FM13.2	Describe medico-legal aspects of poisoning in Workman's Compensation Act	K	K/KH	Y	Lecture, Small group Discussion	Written/ Viva voce			
Topic: Skills in Forensic Medicine & Toxicology		**Number of competencies: (22)**			**Number of procedures that require certification : (NIL)**				
FM14.1	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/casualty), Small group discussion	Log book /Skill station/ viva voce / OSCE			
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/ casualty), Small group discussion	Log book/ Skill station/ Viva voce / OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination	S	SH	Y	Bedside clinic, Small group discussion, DOAP session	Skill lab/ viva voce		General Medicine	
FM14.4	Conduct and prepare report of estimation of age of a person formedico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environment	S	KH	Y	Small group discussion, Demonstration	Logbook / Skill station/ viva voce / OSCE			
FM14.5	Conduct & prepare post-mortem examination report of varied etiologies (at least	S	KH	Y	Small group discussion, Autopsy,	Log book/ Skill station/			

	15) in a simulated/ supervised environment				DOAP session	viva voce / OSCE			
FM14.6	Demonstrate and interpret medico-legal aspects from examination of hair (human & animal) fibre, semen & other biological fluids	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/ viva voce / OSCE			
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book / Skill station/ viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book / Skill station/ viva voce		Pathology, Physiology	
FM14.9	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	SH	Y	Small group discussion, DOAP session	Log book/ Skill station/ viva voce			
FM14.10	Demonstrate ability to identify & prepare medico legal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	Small group discussion, DOAP session	Log book / Skill station/ viva voce/ OSPE			
FM14.11	To identify & describe weapons of medicolegal importance which are commonly used e.g. lathi, knife, kripan, axe, gandasa, gupti, farsha, dagger, bhalla, razor & stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepare injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH	Y	Small group discussion, DOAP session	Log book / Skill station/ viva voce/ OSPE			
FM14.12	Describe the contents and structure of bullet and cartridges used & to provide medico-legal interpretation from these	S	KH	Y	Small group discussion, DOAP session	Log book/ Skills tation/ Viva voce			
FM14.13	To estimate the age of foetus by post-mortem examination	S	KH	Y	Small group discussion, DOAP session	Theory/ Clinical assessment/ Viva voce			
FM14.14	To examine & prepare report of an alleged accused in rape/ unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce/ OSCE			
FM14.15	To examine & prepare	S	KH	Y	Small group	Log book/			

	medico-legal report of a victim of sexual offence/unnatural sexual offence in a simulated/ supervised environment				discussion, DOAP session	Skill station/ Viva voce/ OSCE			
FM14.16	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	KH	Y	Small group discussion, Bed side clinic, DOAP session	Log book/ Skill station/ Viva voce/ OSCE			
FM14.17	To identify & draw medico-legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticides compounds, marking nut, oleander, Nux vomica, abrusseeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	Small group discussion, DOAP session	Log book/ Viva voce			
FM14.18	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce/ OSCE			
FM14.19	To identify & prepare medico-legal inference from histo-pathological slides of Myocardial Infarction, pneumonitis, tuberculosis, brain infarct, liver cirrhosis, brain haemorrhage, bone fracture, Pulmonary oedema, brain oedema, soot particles, diatoms & wound healing	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce			
FM14.20	To record and certify dying declaration in a simulated/ supervised environment	S	KH	Y	Small group discussion, Role Play, Bed side Clinic, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.21	To collect, preserve, seal and dispatch exhibits for DNA-Fingerprinting using various formats of different laboratories.	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/ Viva voce			
FM14.22	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	Small group discussion, Lecture, DOAP session, role play, Court Visits	Log book/ Viva voce/ OSCE			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.
Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,
Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration									
Human Anatomy									
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/ Practical's		Forensic Medicine	
Pharmacology									
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Forensic Medicine
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	Short Note/ Viva voce			Forensic Medicine
Radio-diagnosis									
RD1.13	Describe the components of the PC & PNDT act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics Gynecology, Forensic Medicine	
Psychiatry									
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, AETCOM	
General Medicine									
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment / Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe theirtoxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	

IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	Document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal orhomicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Obstetrics & Gynaecology									
OG1.3	Define and Discuss still birth and abortion	K	KH	Y	Lecture, Small group discussion	Short notes		Forensic Medicine	
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications & management of complications of medical termination of pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo medical termination of pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC & PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
Surgery									
SU8.1	Describe the principles of Ethics as it pertains to surgery	K	KH	Y	Lecture, Small group discussion	Written/ viva voce/skill assessment		Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	

Total Hours of Teaching: 134 (Including AETCOM)

Sl. No.	Competency No.	Topic	Hours
Theory– Forensic Medicine			
1	1.1 – 1.3	Introduction & Courts Related	1
2	1.4 – 1.5	Court Procedure & Powers	1
3	1.6 – 1.7	DD & Others	1
4	2.1 – 2.3	Death	1
5	2.5 – 2.9	Death & Changes	2
6	2.10 – 2.14	PM Examination	2
7	2.16 – 2.18	Exhumation & Bones	1
8	2.20 – 2.23	ASPHYXIA	1
9	2.24 – 2.25	Burns	1
10	2.27 – 2.28	Infany Death	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			
Sl. No.	**Competency no.**	**Topic**	**Hours**
1	8.1 – 8.4	Introduction & Laws	1
2	8.6 – 8.8	General Treatment	1
3	8.7, 8.9, 8.10	Bed Side Test & FSL	2
4	9.1	Corrosive	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	Drug Abuse	1
13	13.1 - 13.2	Environmental	1

Sl. 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	Hai/ 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	Fireatrm	2
12	14.13	Foetus	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	Slid 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	2.17	Exhumation	1
26	1.9	Sickness/ Fitness	2
27	1.10, 1.11	COD	4

Total Hours as Per Present Document: 40 + 15 + 80 = 135

SCHEME OF EXAMINATION

Internal Assessment [kindly refer section II for general guidelines] Calculation of Internal Assessment

1

Internal Examination:

Semester	Theory	Practical	Internal – Weightage
3rd	30	30	20%
4th	30	30	20%
5th	30	30	20%
6th	60	60	40%
Total	**150**	**150**	**100%**

- Attendance requirement is 75% in theory & 80% in Practical for eligibility to appear for the university examination.
- Internal assessment will be based on competencies and skills.
- Importance will be given to day to day performance. 20% weight age will be given to day to day assessment (Performance in Periodic tests, MCQ, Participation in Seminars and Research Projects etc).
- Regular periodic Formative assessment examination will be conducted throughout the course. There will be **minimum three internal assessment examinations.** Out of three internal assessment examinations an average of the two best internal examination scores will be considered. Marks obtained in day to day assessment will be added and the sum of these will be considered as the final internal assessment marks. The internal examinations will have MCQ (20% of total marks) in theory.
- The **third internal examination** will be the **preliminary examination** & will be conducted on the lines of the **university examination.**
- Prior to submission to the University, the marks for internal examination theory assessments will be calculated out of 60 marks, regardless of the maximum marks.
- Prior to submission to the University, the marks for internal examination practical assessments will be calculated out of 20 marks, regardless of the maximum marks.
- Only the final marks out of 60 (theory) and 20 (practical) will be submitted to the University, separately for theory and practical for each internal assessment.
- At least 35% marks of the total marks combined in theory and practical assigned for internal assessment has to be obtained to be eligible to appear for university examinations. A candidate who has not secured requisite aggregate in the internal assessment may be permitted to appear for another internal examination as a remedial measure. If he/she successfully completes the remediation measures prescribed by the Institution / University as the case may be, only then he/she is eligible to appear for University Examination.
- The students should be made aware of the results of internal assessment.
- Students must secure **at least 50% marks** of the total marks (combined in theory and practical) assigned for internal assessment to be **declared successful** at the final university examination of that subject.

Practical: 20 Marks

- There will be minimum three terminal practical examinations.
- Day to day records and log book (including required skill certifications) will be given importance in internal assessment.
- Average of three terminal examinations will be reduced to 15 and marks obtained for Practical Records will be reduced to 05.
- Terminal examinations will be having OSPE in either practical I or II Formative exams.
- The Internal Assessment Marks both in theory and Practical obtained by the candidate will be sent to the University at least fifteen days prior to the commencement of Summative Theory Examinations.
- The Internal Assessment marks will be displayed on the notice board. The students will be shown their answer scripts. Their signatures will be taken against the marks obtained. The answer scripts will be stored in the respective department for 3yrs.

Internal assessment marks will not be added to University examination marks but will reflect as a separate head of passing at the summative examination.

Distribution of Marks for University Examination:

- 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.
- Nature of questions will include different types such as structured essays, modified essays (case based), short essays and short answers questions.
- Viva/oral examination should assess the student's ability to explain key concepts with functional and clinical correlations. Viva should focus on application and interpretation.
- The marks obtained in the viva examination will be added to the practical marks.

Theory Examination:

1. Designing of question paper will take into consideration at all levels of knowledge domain e.g. Bloom's taxonomy of cognitive domain with appropriate verbs for the questions at each level to assess higher levels of learning.
2. Structuring of question paper will be using combination of various types of questions e.g. structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part will be indicated separately.
3. Long essay question will have a structured clinical /Practical question, problem to the students and require them to apply knowledge and integrate it with disciplines. The proper marking distribution will be provided.

4. MCQs will not be more than 20% weightage of total marks. One short essay (5 marks) will be preferably a case vignette.
5. Short question from AETCOM will also be included in theory papers in Formative as well as Summative examinations.

There will be one theory papers with hundred marks. Total duration of Paper will be 03 hrs.

Table Showing Scheme for Examination Marks:

Theory (maximum marks)		**Practical (maximum marks)**	
Paper I	100	Practical exam	100
Total	100	Total	100

A. THEORY: 100 Marks

There shall be one theory paper of 100 marks and duration of paper shall be 3 hours. The pattern of questions in paper shall be as mentioned below.

Type of Question	**Number of Question**	**Maximum marks for each question**	**Total**
Multiple choice question (MCQ)	20	01	20
Structured Long essay questions (SLEQ) Minimum one clinical case based question in each paper	2	10	20
Short Essay questions (SEQ)	06	05	30
Short answer questions (SAQ) -	10	03	30
		Total Marks	**100**

B. Practical: 60 Marks

C. Viva - Voce Examination: 40 Marks.

The viva - voce examination shall carry 40 marks. All four examiners will conduct the examination. Viva will focus on application and interpretation. Viva marks to be added to practical and not 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.

Criteria for Passing University Examination:

1. The student must secure at least 40% marks in each of the two theory papers with minimum 50% of marks in aggregate (both papers together) to pass.
2. The marks obtained in the viva examination will be added to the practical marks.
3. The student must secure a minimum of 50% of marks in aggregate in the viva and practical examination (both combined) to pass.
4. Students must secure at least 50% marks of the totally marks (combined in theory & practical) assigned for Internal assessment to be declared successful at the final university examination of that subject.

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.

RECOMMENDED BOOKS: (Latest edition)

1. Narayana Reddy KS – The Essentials of Forensic Medicine & Toxicology
2. Apurba Nandi – Principles of Forensic Medicine
3. Parekh CK – Parikh's Textbook of Medical Jurisprudence and Toxicology
4. Guharaj PV – Forensic Medicine
5. Parikh CK – Medico-legal Postmortem in India
6. Keith Simpsons, Bernard Knight – Forensic Medicine
7. Pillay VV – Textbook of Forensic Medicine
8. Krishnan Vij – Textbook of Forensic Medicine & Toxicology.

BLDE (DU) UNIVERSITY
SHRI.B.M.PATIL MEDICAL COLLEGE
DEPARTMENT OF COMMUNITY MEDICINE CURRICULUM

2nd Professional Year

Competencies to be covered,

Epidemiology:

1. Define Epidemiology and describe and enumerate the principles, concepts and uses.
2. Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases.
3. Enumerate, describe and discuss the sources of epidemiological data.
4. Define, calculate and interpret morbidity and mortality indicators based on given set of data.
5. Enumerate, define, describe and discuss epidemiological study designs.
6. Enumerate and evaluate the need of screening tests.
7. Describe the principles of association, causation and biases in epidemiological studies.
8. Describe and demonstrate the application of computers in epidemiology

Epidemiology of Communicable Diseases:

1. Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases.
2. Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case.
3. Describe the principles and enumerate the measures to control a disease epidemic.
4. Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease.

Environment & Health (SDL & Practical):

1. Describe the health hazards of air, water, noise, radiation and pollution.
2. Describe the concept of solid waste, human excreta and sewage disposal.
3. Describe the standards of housing and the effect of housing on health.
4. Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program.
5. Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures.

6. Describe the mode of action, application cycle of commonly used insecticides and rodenticides.

Biostatistics (Practical)

1. Formulate a research question for a study.
2. Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data.
3. Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs.
4. Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion.

Time-Table for 2nd Professional Year

Theory Class – 20 hours (1hr each)		
Sr. No.	**Topic**	**Competencies**
1	General Epidemiology	CM 7.1, 7.3, 7.4
2	Descriptive epidemiology	CM 7.5
3	Analytical epidemiology	CM 7.5
4	Experimental epidemiology	CM 7.5
5	Association & causation	CM 7.8
6	Screening of diseases	CM 7.6
7	Infectious disease epidemiology	CM 7.2, 7.7
8	Respiratory infections – Tuberculosis, RNTCP	CM 8.1, 8.3, 8.4, 8.5
9	Respiratory infections – ARI with program	CM 8.1, 8.3, 8.4, 8.5
10	Respiratory infections – MMR,	CM 8.1, 8.3, 8.4, 8.5
11	Intestinal infections – Viral hepatitis	CM 8.1, 8.3, 8.4, 8.5
12	Intestinal infections – Diarrheal diseases & control program	CM 8.1, 8.3, 8.4, 8.5
13	Intestinal infections – Polio with control program	CM 8.1, 8.3, 8.4, 8.5
14	Arthropod-borne infections – Malaria	CM 8.1, 8.3, 8.4, 8.5
15	Arthropod borne infections – Dengue	CM 8.1, 8.3, 8.4, 8.5
16	Arthropod borne infections – Filariasis & NVBDCP	CM 8.1, 8.3, 8.4, 8.5
17	Zoonoses – Rabies & control program	CM 8.1, 8.3, 8.4, 8.5
18	Other Zoonotic infections	CM 8.1, 8.3, 8.4, 8.5
19	Surface infections – HIV/AIDS, STDs & control program	CM 8.1, 8.3, 8.4, 8.5
20	Surface infections – Leprosy & control program	CM 8.1, 8.3, 8.4, 8.5
Self Directed Learning – 10 Hours (1hrs Each)		
21	Air & health	CM 3.1
22	Noise & health	CM 3.1
23	Other Meteorological environment	CM 3.4
24	Housing standards & health	CM 3.5
25	Other environment & health topics	CM 3.4
26	Diphtheria	CM 8.1, 8.3, 8.4, 8.5
27	Influenza, SARS	CM 8.1, 8.3, 8.4, 8.5
28	Cholera	CM 8.1, 8.3, 8.4, 8.5

29	Typhoid fever	CM 8.1, 8.3, 8.4, 8.5
30	Trachoma	CM 8.1, 8.3, 8.4, 8.5

Practical – 30 hours (2hrs each)		**Competencies**
1	Entomology – Intro, class Insecta	CM 3.6, 3.7
2	Entomology – class Insecta	CM 3.6, 3.7
3	Entomology – class Archanida	CM 3.6, 3.7
4	Vector control measures	CM 3.8
5	Biostatistics exercises	CM 6.1 to 6.4
6	Biostatistics exercises	CM 6.1 to 6.4
7	Biostatistics exercises	CM 6.1 to 6.4
8	Biostatistics exercises	CM 6.1 to 6.4
9	Biostatistics exercises	CM 6.1 to 6.4
10	Biostatistics exercises	CM 6.1 to 6.4
11	Occupation health models	CM 11
12	Family planning methods	CM 10.6
13	Cold chain equipments & Immunization	CM 07
14	Meteorology & other models	CM 03
15	Nutrition health & Water related problem solving	CM 05

Block Posting 4wks (3hrs each) - Family Health Study & Field Visit (3^{rd} / 4^{th} term)

Sr. No.	**Topic**	**Competencies**
1	Family health study – Introduction	CM 2.1, 2.2, 2.3, CM 5.2, 5.4
2	Anthropometric measurement	
3	Family visit	
4	Family visit	
5	Family visit	
6	Family visit	
7	Diet calculation	
8	Health education principles	
9	Preparation of presentation	
10	Presentation of family health study	
11	Presentation of family health study	
12	Feedback to the family	
13	Health education activity in the community	
14	Health education activity in the community	
15	Health education activity in the community	
16	FHS - Record correction	
17	Field visit – DTC	
18	Field visit – Anganwadi	
19	Field visit – Milk dairy	
20	Field visit – BMW plant	
21	Field visit – old age home	
22	Field visit – water purification plant	
23	Writing field visit reports	
24	FV - Record correction	

Alignment & Integration:

Teaching topics that similar together there by reducing redundancy & allowing learner to integrate concept as a most important stepping integration & alignment.

To reach the achievement of broad competencies & to retain the subject by the learner to assess the outcome at the end of the year.

Horizontal:

Topic	Collaborating Departments	Competencies
Food Hygiene	Microbiology	CM 5.7
Investigation of an Epidemic	Microbiology	CM 7.7
Hospital Waste Management	Microbiology	CM 14
Epidemiology & Disease Control Measures	Microbiology; Pathology	CM 8
Disorders of air pollution, Tobacco and alcohol	Pathology	CM 3.1
Essential Medicine	Pharmacology	CM 19

Vertical:

Topic	Collaborating Departments	Competencies
CDs and its prevention	General Medicine	CM 8
General Epidemiology	General Medicine	CM 7
Emerging Infectious Diseases	General Medicine, Microbiology	CM 7.7
Immunization in children	Microbiology; Pediatrics	CM 10.5
Tuberculosis and RNTCP	Pathology; Microbiology; Pharmacology; Respiratory Medicine	CM 8
Nutritional Disorders and Prevention	Biochemistry; General Medicine	CM 5

Internal Assessment:

3rd Term: Theory

Practical – Biostatistics

4th Term: Theory

Practical – OSCE / OSPE

ANNEXURE - I

Topics for Integrated teaching with linker session

Sl no.	Competency no.	Topics	To be integrated with
1	PA32.4 IM 11.3,IM 11.5, 11.11 to 11.13	Diabetes	Pathology Physiology, General medicine
2	PA 32.1 to 31.3 IM 12.1, 12.3 SU 22.2	Thyroid disorders	Anatomy, Physiology, Pathology General medicine General surgery
3	PA13.3 to 16.7 IM 9.1,9.2, 9.6 to 9.13 BI 5.2, 6.11, 6.12	Anaemia	General medicine Biochemistry Pathology
4	PA 25.1, PA 25.3, PA 25.6 BI 11.7 IM5.1,5.4, 5.12,5.14 SU28.12	Jaundice	Biochemistry Pathology General medicine General surgery
5	PA 26.4 IM 3.1, 3.3	Tuberculosis	General medicine- Microbiology Pathology
6	PA 9.6 IM 6.5,6.6,6.10, 6.19 MI 2.7	AIDS	General medicine Microbiology Pathology

ANNEXURE -II

AETCOM MODULE ON MEDICAL ETHICS

INTRODUCTION

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

There is now a shift from the traditional individual patient, doctor relationship and medical care. With the advances in science and technology and the needs of patient, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctor and health professional are confronted with many ethical problems. It is therefore necessary to be prepared to deal with these problems.

In keeping with its goal to improve quality of education, BLDE (Deemed to be University), recommends introduction of Medical Ethics in the regular teaching of MBBS Course beginning from first year and containing till internship.

OBJECTIVES

The objectives of teaching medical ethics should be enable to students develop the ability to:

1. Identify underlying ethical issues and problems in medical practice.
2. Consider the alternatives under the given circumstances and make decisions based on acceptable moral concepts and also traditions practices.

Sl. No	Course content	Department	Hours
1	**Introduction to Medical Ethics** What is Ethics? What are values and norms Relationship between being ethical and human fulfilment? How to form a value system in one's personal and professional life? Hemmans, Heteronomous Ethics and Autonomous Ethics Freedom and Personal Responsibility	Pathology	2

2	**Definition of Medical Ethics** Difference between medical ethics and bioethics Major Principles of Medical Ethics Beneficence = fraternity Justice = equality Self-determination (autonomy) = liberty	Pathology	2
3	**Perspectives of Medical Ethics** The Hippocratic oath The Declaration of Helsinki The WHO Declaration of Geneva International code of Medical Ethics (1983) Medical Council of India Code of Ethics	Physiology	2
4	**Ethics of the Individual** The patient as a person The Right to be respected Truth and Confidentiality The Autonomy of decision	Surgery	2
	The concept of disease, health and healing The Right to health Ethics of Behavior modification The Physician Patient relationship Organ donation	Community Medicine	2
5	**The Ethics of Human life** What is human life? Criteria for distinguishing the human and the non-human Reasons for respecting human life The beginning of human life	OBG	6

	Conception, Contraception Abortion Prenatal sex-determination In vitro Fertilisation (IVF) Artificial Insemination by Husband (AIFI) Artificial insemination by Donor (AID) Surrogate motherhood Semen Intrafallopian Transfer (SIFT) Gamete Intrafallopian Transfer (GIFT) Zygote Intrafallopian Transfer (ZIFT) Genetic Engineering		
6	**The Family and Society in Medical Ethics** The Ethics of human sexuality Family Planning perspectives Prolongation of life Advanced life directives - The Living Will Euthanasia Cancer and Terminal Care	Medical Education Department	6
7	**Death and Dying** Use of life-support systems Death awareness The moment of death Prolongation of life Ordinary and extraordinary life support Advanced life directives Euthanasia — passive and active	Anaesthesia	4

	Suicide — the ethical outlook The right to die with dignity		
8	**Professional Ethics** Code of conduct Contract and confidentiality Charging of fees, Fee-splitting Prescription of drugs Over-investigating the patient Low cost drugs, vitamins and tonics Allocation of resources in health care	Surgery	4
9	**Research Ethics** Animal and experimental research Human experimentation Human volunteer research Informed Consent, Drug trails	Pharmacology	4
10	**Ethical work-up of cases** Gathering all scientific factors Gathering all human factors Gathering all value factors Identifying areas of value conflict setting of priorities Working out criteria towards decisions	All clinical departments	6
		Total hours	**40**

ANNEXURE -III
Draft of Clinical Postings of 2019-20 (CBME) Batch new

	January	February	March	April	May	June	July	August/ Month 1	September/ Month 2	October/ Month 3	Novembe r/Month 4	December/ Month 5
								Foundation course				
									I MBBS Exam	Medicin e 4 weeks	Surgery 4 weeks	OBGY 4 weeks
	Comm. Medicin e 4 weeks	ENT 4 weeks	Ophtho 4 weeks	Pediatric 2 weeks Ortho 2 weeks	Chest 2 weeks Psy 2 weeks	Radio 2 weeks Skin 2 weeks			II MBBS Exam	Medicin e 4 weeks	Surgery 4 weeks	OBGY 4 weeks
	Pediatri c 4 weeks	Ortho 4 weeks	ENT 4 weeks	Ophtho 4 weeks	Comm. Medicine 4 weeks	Comm. Medicine 2 weeks Psy 2 weeks	Skin 2 weeks Dental + Anaes. 2 weeks	Casualty 2 weeks		III/I MBBS Exam	Electives & Skills 4 weeks	
	Medicin e 4 weeks	Medicine 4 weeks	Surgery 4 weeks	Surgery 4 weeks	OBGY 4 weeks	OBGY 4 weeks	Pediatri c 4 weeks	Ortho 2 weeks Skin 2 weeks	Medicine 4 weeks	Surgery 4 weeks	OBGY 4 weeks	
	III/II Exam.											

Medicine = 4+4+8+4 = 20
Surgery = 4+4+8+4 = 20
OBGY =4+4+8+4 = 20
Pediatric = 2+4+4 = 10

Comm. Med = 4+6 =10
Ortho + trauma = 2+4+2 = 8
ENT = 4+4 = 8
Eye (Oph) = 4+4 =08
Chest = 2

Psy = 2+2 = 4
Skin = 2+2+2 = 6
Dental + Anaes = 2
Casualty = 2
Radio = 2
Electives = 4

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