MBBS DEGREE REGULATIONS (Old2014-2019)
(Adapted from MCI-GMER 1997)
A) CONDITIONS FOR ADMISSION

ADMISSION

Admission to the Medical Programme – 'Eligibility Criteria': No Candidate shall be admitted to the M.B.B.S. Course (Bachelor of Medicine and Bachelor of Surgery) Unless:

(1) He/she has completed the age of 17 years on or before 31st Dec. of the year of admission.
(2) He/she has passed qualifying examination as under:

Candidates should have passed in **all the subjects** of the qualifying examination of the Higher Secondary Course conducted by the Tamil Nadu State Board/any other equivalent Board in **a single sitting** with the following group of subjects and securing minimum eligible marks. i) Physics, Chemistry, Botany and Zoology. (or) (ii) Physics, Chemistry, Biology with any other subject.

***** Candidates who have passed the HSC in the **Vocational Stream and private candidates are not eligible** to apply for Medical/Dental Courses.

Any other examination, which is recognized to be equivalent by Annamalai University

DURATION OF THE COURSE

5 ½ years, including one year of Compulsory Rotatory Resident Internship.

SELECTION OF STUDENTS

Ranking will be made on merit on the basis of marks obtained by the eligible candidates in the science subjects in the qualifying examinations reduced to the base of 200 marks. The marks obtained through different boards will be taken into account after normalization.

MIGRATION (MCI-97)

(1) Migration from one medical college to other is not a right of a student. However, the Medical Council of India may consider migration of students from one medical college to another medical college in India, only in exceptional cases on extreme compassionate grounds*****, provided the following criteria are fulfilled. Routine migrations on other grounds shall not be allowed.
(2) Both the colleges, i.e. one at which the student is studying at present and one to which migration is sought, are recognized by the Medical Council of India.
(3) The applicant candidate should have passed first professional MBBS examination.
(4) The applicant candidate submits his 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.
(5) The applicant candidate must submit an affidavit stating that he/she will pursue 18 months of prescribed study before appearing at II professional Bachelor of Medicine and Bachelor of Surgery (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 1:

(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 migrations 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 decisions where applicant has been allowed to migrate without referring the same to the Council.

Note 2: *Compassionate grounds criteria:

(i) Death of a supporting guardian.

(ii) Illness of the candidate causing disability

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

TRAINING PERIOD AND TIME DISTRIBUTION

(1) Every student undergoes a period of certified study extending over 4½ academic years divided into 9 semesters, (i.e. of 6 months each) from the date of commencement of his study for the subjects comprising the medical curriculum to the date of completion of examination and followed by one-year compulsory rotating internship. Each semester consists of approximately 120 teaching days of 8 hours each college working time, including one hour of lunch.

(2) The period of 4 ½ years is divided into three phases as follows:-

a) **Phase-1** (two semesters) - consisting of Pre-Clinical subjects (Human Anatomy, Human Physiology including Bio-Physics, Bio-Chemistry and introduction to Community Medicine including Humanities). Besides 60 hours for introduction to Community Medicine including Humanities, rest of the time shall be somewhat equally divided between Anatomy and Physiology plus Biochemistry combined (Physiology 2/3 and Biochemistry 1/3)

b) **Phase-II** (3 semesters) - consists of Para – Clinical/Clinical subjects.

During this phase teaching of para-clinical and clinical subjects is done concurrently.

The para-clinical subjects consist of Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology and part of Community Medicine.

The clinical subjects shall consist of all those detailed below in Phase III.

Out of the time for Para-clinical teaching approximately equal time is allotted to Pathology, Pharmacology, Microbiology and Forensic Medicine and Community Medicine combined (1/3 Forensic Medicine and 2/3 Community Medicine).

c) **Phase-III** (Continuation of study of clinical subjects for seven semesters after passing Phase-1)

The clinical subjects to be taught during Phase II and III are Medicine and its allied specialities, Surgery and its allied specialities, Obstetrics and Gynaecology, Paediatrics and Community Medicine.

Besides clinical posting as per schedule mentioned herewith, rest of the teaching hours is divided for didactic lectures, demonstrations, seminars, group discussions, etc. in various subjects. The time distribution shall be as per Appendix-C.

The Medicine and its allied specialities training include General Medicine, Paediatrics, Tuberculosis and Chest, Skin and Sexually Transmitted Diseases Psychiatry, Radio-diagnosis, infectious diseases etc. The Surgery and its allied specialities training will include General Surgery, Orthopaedic Surgery including Physical Medicine and Rehabilitation, Ophthalmology, Otorhinolaryngology, Anaesthesia, Dentistry & Radio-therapy. The Obstetrics & Gynaecology training include family medicine & family welfare planning.

3) The first 2 semesters (approximately 240 teaching days) are occupied in the Phase I (Pre-clinical) subjects and introduction to a broader understanding of the perspectives of medical education leading to delivery of health care. No student is permitted to joining the Phase II (Para –clinical/clinical) group of subjects until he has passed in all the Phase 1 (Pre-clinical) subjects.

4) After passing pre-clinical subjects, 1 ½ year (3 semesters) is devoted to para-clinical subjects.

   Phase II will be devoted to para-clinical and clinical subjects, along with clinical postings. During clinical phase (Phase III) pre-clinical and para-clinical teaching are integrated into the teaching of clinical subjects where relevant.

5) Didactic lectures are restricted to one third of the time schedule; two thirds include practicals, clinicals or/and group discussions. Learning process include living experiences, problem oriented approach, case studies and community health care activities.

6) Supplementary examination is conducted within 6 months so that the students who pass can join the main batch and the failed students will have to appear in the subsequent year.

Phase Distribution and Timing of Examinations:-

6 MONTHS	6 MONTHS	6 MONTHS	
1	2		I professional examination (during second semester)
3	4	5	II professional examination (during fifth semester)
6	7		III professional Part – I (during 7th semester)
8	9		III professional Part – II (Final Professional) during 9th semester).

Note:

a) Passing in I Professional is compulsory before proceeding to Phase II training.

b) Passing in II Professional examination is not compulsory before entering for 6th and 7th semester training, however passing of II professional is compulsory for being eligible for III professional (Part I) examination.

c) Passing in III Professional (Part I) examination is not compulsory before entering for 8th and 9th semester training, however passing of III Professional (Part I) is compulsory for being eligible for III Professional (Part II) examination.

During third to ninth semesters, clinical postings of three hours duration daily as specified in the Table below is suggested for various departments, after Introductory Course in Clinical Methods in Medicine and Surgery of two weeks each for the whole class.

TIME TABLE

Total Subject	3rd Semester (Weeks)	4th Semester (Weeks)	5th Semester (Weeks)	6th Semester (Weeks)	7th Semester (Weeks)	8th Semester (Weeks)	9th Semester (Weeks)	Total Semester (Weeks)
General Medicine***	6	–	4	–	4	6	6	26
Paediatrics	–	2	–	2	2	4	–	10
Tuberculosis and chest Diseases	–	2	–	–	–	–	–	2
Skin and STD	–	2	–	2	–	2	–	6
Psychiatry	–	–	2	–	–	–	–	2
Radiology*	–	–	–	–	2	–	–	2
General Surgery****	6	–	4	–	4	6	6	26
Orthopaedics**	–	–	4	4	–	–	2	10
Ophthalmology	–	4	–	4	–	–	2	10
Ear Nose and Throat	–	4	–	4	–	–	–	8
Obstetrics***** and Gynaecology including Family Welfare Planning	2	4	4	–	4	4	6	24
Community Medicine	4	4	–	4	–	–	–	12
Casualty	–	–	–	2	–	–	–	–
Dentistry	–	–	–	–	2	–	–	2
Total (in weeks)	**18**	**22**	**18**	**22**	**18**	**22**	**22**	**142**

Clinical methods in Medicine and Surgery for whole class will be for 2 weeks each respectively at the start of 3rd semester.

* This posting includes training in Radiodiagnosis and Radiotherapy where existent.
** This posting includes exposure to Rehabilitation and Physiotherapy.
*** This posting includes exposure to laboratory medicine and infectious diseases.
**** This posting includes exposure to dressing and Anesthesia.
**** This includes maternity training and Family medicine and the 3rd semester posting shall be in Family Welfare Planning.

FCURRICULUM (SUBJECT-WISE)
PRE-CLINICAL SUBJECTS – PHASE I

In the teaching of these subjects stress shall be laid on basic principles of the subjects with more emphasis on their applied aspects.

HUMAN ANATOMY

(i) GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross and microscopic structure and development of human body to provide a basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. comprehend the normal disposition, clinically relevant interrelationships functional and cross sectional anatomy of the various structures in the body;
b. identify the microscopic structure and correlate elementary ultra structure of various organs and tissues and correlate the structure with the functions as a prerequisite for understanding the altered state in various disease process;
c. comprehend the basic structure and connections of the central nervous system to analyze the integrative and regulative functions of the organs and systems. He/She shall be able to locate the site of gross lesions according to the deficits encountered;
d. demonstrate knowledge of the basic principles and sequential development of the organs and systems, recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. He / She shall be able to explain the developmental basis of the major variations and abnormalities.

(B) Skills:

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

a. identify and locate all the structures of the body and mark the topography of the living anatomy;
b. identify the organs and tissues under the microscope;
c. understand the principles of karyotyping and identify the gross congenital anomalies;
d. understand principles of newer imaging techniques and interpretation of Computerised Tomography (CT) Scan, sonogram etc.
e. understand clinical basis of some common clinical procedures ie., intramuscular and intravenous injection, lumbar puncture and kidney biopsy etc.

(C) Integration

From the integrated teaching of other basic sciences, student shall be able to comprehend the regulation and integration of the functions of the organs and systems in the body and thus interpret the anatomical basis of disease process.

II COURSE CONTENT

Duration of I M.B.B.S.	-	240 days	
Total Number of Houses	-	650 Hrs	
Diadactic Lectures			200 Hrs
Regional Anatomy	-	125 Hrs	
Microscopic Anatomy	-	35 Hrs	
Developmental Anatomy	-	30 Hrs	
Genetics	-	10 Hrs	
Practicals			410 Hrs
Regional Anatomy	-	281 Hrs	
Microscopic Anatomy	-	65 Hrs	
Genetics	-	04 Hrs	
Seminars	-	45 Hrs	
Quiz Programme	-	15 Hrs	
Evaluation			40 Hrs
		Total	**650 Hrs**

THEORY

General Anatomy : History of Anatomy
Nomenclature & Terminology
Introduction to Anatomy – System wise

I. Regional Anatomy Including Applied Anatomy

A. Upper Limb (16 Hrs)
Pectoral region and Axilla
Front of arm and cubital foss
Superficial structures of Back of Trunk, scapular region and back of arm
Joints of shoulder girdle, back of forearm and hand
Front of forearm and palm
Joints of free limb
Radiological Anatomy
Surface Anatomy

B. Lower Limb (16 Hrs)
Extensor and Adductor compartment of thigh
Gluteal region and back of thigh
Hip joint, popliteal fossa and flexor compartment of leg
Extensor and peroneal compartment of leg, dorsum of foot and sole of foot
Knee joint, Ankle joint, subtalar joints
Radiological Anatomy
Surface Anatomy

C. Abdomen and Pelvis (32 Hrs.)
Anterior Abdominal wall, External genitalia
Peritoneal Sacs
Stomach and Intestine
Liver, Duodenum, Pancreas, Spleen
Kidney, supra renal, thoracic diaphragam
Posterior Abdominal wall
Sectional Anatomy at L1, L3, L5
Pelvic Viscera

Blood vessels and nerves of pelvis
Pelvic diaphragm and perineum
Sectional Anatomy - Sagittal section
- Coronal section
Radiological Anatomy - Plain X-rays
- Special X-rays with contrast medium
Surface Anatomy

D. Thorax (8 hrs)
Throacic cage, mediastinum
Pleura and lungs
Heart and great vessels
Thoracic duct, Azygos system of veins oesophagus and descending thoracic aorta
Joints of thorax
Sectional Anatomy at T2, T4, T8
Radiological Anatomy – Plain and Contrast medium X-rays
Surface Anatomy

E. Head and Neck (32 hrs.)
Skull – External aspect
Triangles of Neck, cervical fascia
Face and scalp
Cranial cavity
Orbit and lacrimal apparatus
Parotid, temporal, Infra temporal, TM joint
Submandibular region
Midline structures, deep structures of the neck
Oral cavity
Nasal cavity
Pharynx, larynx
Eye ball and ear
Section Anatomy - Sagittal section of Head and Neck
- Cross Section of Neck

F. Brain and Spinal Cord (15 Hrs.)
Meninges
Arteries supply and venous sinuses
Fore Brain
Diencephalon
White matter, corpus striatum
Lateral and third ventricle
Mid brain – Section at Superior colliculus and inferior colliculus
Medulla Oblongata – section at
a. Pyramidal decussation
b. Sensory decussation
c. Open part of medulla
Hind Brain
Pons, cerebellum
Fourth ventricle
Circulation of C.S.F.
Spinal cord
Afferent and efferent tracts
Peripheral nervous system

Sectional Anatomy

a. Mid sagittal section
b. Horizontal section at interventricular foramen
c. Coronal section at anterior commissure
d. Coronal section at mamillary body

II. Microscopic Anatomy

a) General Histology (10 Hrs.)

Processing the tissue for microscopy
Basic tissues of the body
Epithelial tissue including glands
Connective tissue including scleral tissue (bone and cartilage)
Muscular tissue
Nervous tissue

b) Systemic Histology (25 Hrs.)

Lymphoid system
Cardiovascular system
Digestive system including associated glands
Urinary system
Male reproductive system
Endocrine glands
Organs of special sense

III. Genetics

Theory : Basic Principles of Medical Genetics
Practical : Sex chromatin demonstration from Buccal mucosa.

IV. Developmental Anatomy

a) General Embryology (10 Hrs.)

Reproductive organs (integrated with physiology)
Gametogenesis
Fertilization, cleavage, implantation
Embryonic period
Fetal period – monthly change
Fetal membranes and placenta
Twin
Teratology

b) Systemic Embryology (20 Hrs.)

Body cavities
Digestive system – Foregut, midgut and hind gut
Urogenital system
Respiratory system
Cardiovascular system
Fetal circulation
Branchial apparatus
Face, organs of special senses
Nervous system
Musculo skeletal system

PRACTICALS

I. Regional Anatomy (Dissection)

A. Upper Limb (16 Hrs)
Pectoral region and Axilla
Front of arm and cubital foss
Superficial structures of Back of Trunk
Scapular region and back of arm
Sternoclavicular joint and Acromioclavicular joint
Should joint
Front of forearm
Back of forearm
Hand – Palm and dorsum
Joint of free limb

B. Lower Limb (40 Hrs)
Extensor and Adductor compartment of thigh
Gluteal region and back of thigh
Popliteal fossa and flexor compartment of leg
Extensor and peroneal compartment of leg
*Dorsum and sole of foot
*All joints of lower limb
*Demonstration on the prosected specimens

C. Abdomen and Pelvis (82 Hrs.)
Anterior Abdominal wall and inguinal canal
External genitalia
Peritoneal sacs
Coeliac axis, superior and inferior mesenteric artery
Portal vein
Abdominal viscera
Study of liver, duodenum, pancreas and spelln
Kidney and supra renal
Posterior abdominal wall
Lateral wall of pelvis – Vessels and nerves
*Pelvic viscera
*Perineum
*Ischio rectal fossa
*Demonstration on prosected specimens.

D. Thorax (24 hrs)
Throacic wall
Mediastinum
Lungs
Heart
Oesophagus, descending thoracic aorta
Azygos venous system and thoracic duct in the posterior mediastinum

E. Head and Neck (86 hrs.)
Posterior triangle of neck
Anterior triangle of neck
Face and scalp
Cranial cavity

Orbit and lacrimal apparatus
Parotid, temporal, Infratemporal regions
Temporomandibular joint
Submandibular region
Midline structures, deep structures of the neck
*Deep dissection of back
*Oral cavity
*Nasal cavity
*Pharynx
*Larynx
*Eye ball and ear
*Demonstration on the prossected specimen

F. Brain and Spinal Cord (40 Hrs.)
No dissection
Only demonstration of the specimens

II. Microscopic Anatomy

a) General Histology (36 Hrs.)
Epithelial tissue
Connective tissue including scleral tissue (bone and cartilage)
Muscular tissue
Nervous tissue

b) Systemic Histology (44 Hrs.)
Organs of all system

III. Genetics **(4 Hrs)**

Demonstration of

a) Karyotyping of Normal
Karyotyping of DS, KFS, TS
Clinical features of DS, KFS, TS

b) Sex chromatin from Buccal smear
Pedigree chart.

III EVALUATION

Evaluation Scheme
Written

Paper – I **80 Marks, 3 Hrs**

Topic included for Paper – I

1. Upper limb
2. Lower limb
3. Abdomen
4. Pelvis & Perineum
5. Systemic Histology
    a. Alimentary tract including glands associated with it
    b. Urinary system
    c. Male reproduction system
    d. Female reproduction system
6. Systemic Embryology of
    a. Alimentary tract including glands
    b. Urinary system
    c. Male reproductive system
    d. Female reproductive system

Paper – II **80 Marks, 3Hrs**

Topic included for Paper – II

1. Thorax
2. Head and Neck
3. Brain and Spinal Cord
4. General Histology
5. Systemic Histology of
    a. Respiratory system
    b. Cardiovascular system
    c. Endocrine system
    d. Eye ball and olfactory mucosa

6. General Embryology
7. Systemic Embryology of
    a. Respiratory system
    b. Cardiovascular system
    c. Branchial apparatus including development of ace
    d. Endocrine glands
    e. Integumentary system including development of mammary gland.
    f. Eye ball and ear
8. Elementary Genetics
    a. Karyotyping

GENERAL GUIDELINES TO THE QUESTION PAPER SETTER

1. Two questions paper (paper – I and paper – II) each of 3 hours must be set. The topics for each paper are enclosed in separate sheets.
2. The question papers should confirm strictly to the pattern of the model papers enclosed.
3. All question must be structured and the split – up of marks must the indicated for each question.

4. All the questions must be from within the scope of the curriculum contents, enclosed.
5. As per the MCI instruction the 10 marks allotted fro the applied anatomy may be distributed the various section of the questions given below:
    a. Section A contains 2 essay questions 2 x 10 = 20
    b. Section B contains 4 short questions 4 x 5 = 20
    c. Section C also contains 4 short questions 4 x 5 = 20
    d. Section D also contains 4 short questions 4 x 5 = 20
    Total **80**

SPECIFIC GUIDELINES FOR PAPER – I

a. For proper distribution of marks among the various subdivisions, the following pattern may be followed:

Regional Anatomy

Limbs	18
Abdomen and Pelvis	30
Applied Anatomy	16
Systemic Histology(Refer Syllabus)	08
Systemic Embryology	08
Total	**80**

b. Of the 2 essay questions, one should be from the limbs and one from the abdomen and pelvis.

SPECIFIC GUIDELINES FOR PAPER II

a. For proper distribution of marks among the various subdivisions, the following paper may be followed:

Regional Anatomy

Thorax	13
Head and Neck	18
Brain and Spinal Cord	10
Applied Anatomy	16
General Histology &Systemic Histology (Refer Syllabus)	08
General Embryology &Systemic Embryology (Refer Syllabus)	08
Genetics	07
Total	**80**

b. Of the 2 essay questions, one should be from thorax and one form Head and Neck excluding Brain and Spinal Cord

HUMAN PHYSIOLOGY INCLUDING BIO-PHYSICS

PHYSIOLOGY

(i) GOAL:

The broad goal of the teaching of undergraduate students in physiology aims at providing the student comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the physiological basis of health and disease.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. explain the normal functioning of all the organ systems and their interactions for well coordinated total body function;
b. assess the relative contribution of each organ system to the maintenance of the milieu interior;
c. elucidate the physiological aspects of normal growth and development;
d. describe the physiological response and adaptations to environmental stresses;
e. list the physiological principles underlying pathogenesis and treatment of disease.

(B) Skills:

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

a. conduct experiments designed for study of physiological phenomena;
b. interpret experimental / investigative data;
c. distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.
d.

(C) Integration At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

BIOPHYSICS

(i) GOAL:

The broad goal of teaching Biophysics to undergraduate students is that they should understand basic physical principles involved in the functioning of body organs in the normal and diseased conditions.

Total time for teaching Biophysics = 5 hours
Out of which: 1. Didactic lectures = 3 hours
2. Tutorial/group discussion= 1 hour
3. Practical 1 hour

(ii) OBJECTIVES

(1) Lectures:

(i) Physical principles of transport across cell membranes and across capillary wall
(ii) Biopotentials
(iii) Physical principles governing flow of blood in heart and blood vessels. Also physical principles governing flow of air in air passages

(2) Tutorial/group discussion: On the topic covered in didactic lectures

(3) Practical:

Demonstration of:
(a) Biopotential on oscilloscope
(b) Electro Encephalogram (E.E.G.)

(c) Electro Myogram (E.M.G.)
(d) Electro Cardiogram (E.C.G.)

SYLLABUS IN PHYSIOLOGY

(in accordance with the newly introduced regulations of the Medical Council of India)

DURATION OF COURSE: 240 teaching days.
TOTAL NO. OF HOURS: 480

BREAK – UP

Diadactic lectures:		160 hrs
Demonstrations, Tutorials and Seminars		160 hrs
Practical		160 hrs

	Total	480 Hours

M.B.B.S. – SYLLABUS – THEORY

1. GENERAL PHYSILOGY & BIOPHYSICS

Cell physiology – an overview
Transport across cell membranes
Bio-Electric potentials – genesis and recording (05 Hours)

2. PHYSIOLOGY OF NERVE & MUSCLE

Neuron	–	Components and their functions
NERVE IMPULSE	–	Origin and propagation
Nerve fibres	–	Types and classification, compound action potential.
Neuronal Injury	–	Types, Degeneration and regeneration.
Neuroglia	–	Types and functions
Muscle	–	Types and distinguishing characteristics
SKELETAL MUSCLE	–	Structure, molecular basis of contraction, mechanical, chemical, thermal and electrical changes(EMG) during contraction.Features of contraction.Types of skeletal muscle and their features.
Smooth Muscle	–	Types, location, properties and functions.
Cardiac Muscle	–	Structure and properties.
Neuro Muscular Junction	–	Morphology, mechanism of neuro muscular transmission and properties/features of the transmission process.Neuro muscular blocking agents.Myaesthenia gravis.Myopathies.

(15 HOURS)

3. BLOOD AND BODY FLUIDS

Body fluids	-	definitions, compartments, and measurements (principles)
Blood	-	composition and general functions.
Plasma proteins	-	Names, concentration in plasma, properties and functions.
Erythrocytes	-	Erythropoiesis; stages and regulation. Normal RBC: features, normal count and its variations, PCV and indices, ESR, Osmotic fragility; haemoglobin: components, functions, types derivatives, normal values and variations. Life span and rate of RBC.
Jaundice	-	types and features, patho physiology

Anaemia	-	Classification and features.
Blood groups	-	types, determination, clinical importance, blood transfusion and its complications.
Immunity	-	types and their features.
Leucocytes	-	classification, leucopoiesis, morphology, normal count, variations in health and disease and functions.
Haemostasis	-	components; platelets – formation, morphology, normal count, variations in health and diseases and function;
Coagulation of blood	-	clotting factors and mechanism of blood coagulation; disorder of haemostasis.
Blood volume	-	normal values, variations and determination
Lymph	-	formation, composition, circulation and functions
Reticulo	-	endothelial system – components and functions.
PH of blood	-	integrated with department of Biochemistry.

(18 HOURS)

4. CARDIOVASCULAR SYSTEM

Functional Anatomy- of heart and blood vessels structure and properties of cardiac muscle. Origin and spread of cardiac impulse.

Electrocardiography	-	definition, recording normal ECG and common abnormalities.
Cardiac cycle	-	definition, duration, phases and events: pressure, volume, electrical and acoustic changes and arterial and venous pulse. Heart sounds and murmurs.
Cardiac output	-	definitions, normal values, variations, determination and regulation.
Heart rate	-	normal values, variations and regulation.
Blood vessels	-	types and their features, haemodynamics (physics of bloodflow), plethysmography and circulation time.
Arterial blood pressure	-	definition, normal values, variations, determination and regulation. Hypertension.Venous circulationCapillary dynamics.
Regional circulation	-	normal values, estimation, special features, determinants and regulation of coronary, cerebral, splanchnic and cutaneous circulation pathophysiology of shock and cardiac failure.Cardiorespiratory changes during muscular exercise.

(25 HOURS)

5. RESPIRATORY SYSTEM

- Introduction and functional anatomy
- Pulmonary ventilation – mechanics of breathing, surfactants, lung compliance, lung volume and capacities, pulmonary ventilation, dead space and alveolar ventilation.
- Exchange of gases in the lungs
- Pulmonary circulation – organization, features and regulation
- Ventilation/perfusion ratio
- Oxygen and carbon dioxide transport.
- Regulation of respiration
- Respiration and acid base balance (Integrated with Biochemistry)
- Non-respiratory functions of lungs
- Hypoxia, asphyxia and cyanosis

- Pulmonary function tests
- Respiration in unusual environment, high altitude, depths, Muscular exercise and dysbarism.
- Artificial respiration and CPR
- Oxygen therapy. (15 HOURS)

6. GASTRO INTESTINAL TRACT

- Introduction and physiological anatomy
- Source, mechanism, composition, functions and regulation of salivary, gatric, pancreatic, intestinal and Biliary secretions.

  Functions of gall bladder and regulation.

  Mastication and deglutition; gastric motility – types of movements, functions, features and regulation. Vomiting, Intestinal movements types, functions, features and regulation.

  Defecation applied aspects.

  Digestion and absorption (integrated with Biochemistry)

  Liver function tests (Integrated with Biochemistry) (15 HOURS)

7. RENAL PHYSIOLOGY, MICTURITION, SKIN AND THERMOREGULATION.

- Functional anatomy of the urinary tract,
- Structure of the nephron, Renal circulation
- Glomerular filtration and tubular functions.
- Kidneys and acid base balance (integrated with Biochemistry)
- Renal regulation of water and Electrolyte balance.
- Renal function tests. Artificial kidney (Renal dialysis)

Micturition - definition, reflex arc, regulation. Applied aspects skin- components and functions, Thermoregulation – normal body temperature, heat production and heat loss mechanisms, regulation, measurement, fever and hypothermia. (15 HOURS)

8. ENDOCRINE PHYSIOLOGY

Introduction: Functional anatomy and endocrine secretion of hypothalamus, pituitary, thyroid, parathyroid, pancreas and suprarenal glands. Chemistry, Biosynthesis, transport storage, inactivation, actions (functions) and regulation of secretion of individual hormones, pathophysiology of hypo and hyper states of the glands. Test for functions of the glands. Physiology of stress.

(20 HOURS)

9. PHYSIOLOGY OF REPRODUCTION

Introduction , sex determination and differentiation.

Disorders, Puberty and Menopause.

Male reproductive system:

Functional anatomy, functions of the different components. Spermatogenesis and its control semen – volume and components and their characteristics and functions of Sertoli cells. Testosterone – source, chemistry, actions and regulation.

Female reproductive system:

Functional anatomy.Oogenesis.Menstrual cycle – definition, phases and regulation.Indicates for ovulation.Oestrogen and progesterone – source chemistry, action and regulation.Fertilization physiology of pregnancy, parturition and lactation.Immunological test for pregnancy.

CONTRACEPTION: Definition, method for male and female – physiological merits and demerits.
(10 HOURS)

10.CENTRAL NERVOUS SYSTEM

Synaptic transmission; sensory Receptors – definition, classification, properties and coding of sensory information. Reflexes – definition, classification and properties; Stretch reflex and muscle tone-genesis, regulation and significance. Sensation – definition, classification; general somaticsensory pathways; physiology of pain.

Spinal cord- functional anatomy, neurons and tracts and their functions; dorsal and ventral nerve roots – functions and lesions.

Pyramidal tracts-origin, course, connections, termination, functions and effects of lesions.Upper motor neuron and lower motor neuron paralysis.

Reticular formation – organization, connections and functions, physiology of sleep, EEG and consciousness, evoked potentials.

Cerebellum – functional lobes, molecular structure, connections, functions and effects of lesions.

Hypothalamus – components, connections and functions. Thalamus – components, connections and functions. Thalamic syndrome.

Basal ganglia – components, connections and functions, clinical disorders and their physiological basis.

Cerebral cortex – Brodman's areas and their functions.

Neocortical functions – conditioned reflex, learning and memory, speech and language. Hemispherical specialization.

Pre-frontal lobe-components, connections, functions and effects of lesions, Limbic system-components, connections, functions and effects of lesions.Automatic nervous system divisions and their organization, targets and actions.Mode of action of blockers.

Cerebro-spiral fluid – source, formation.Composition, circulation, absorption and functions, Methods of collection of CSF. (30 HOURS)

11. SPECIAL SENSES:

Introduction: VISION: Functional anatomy of the eye-ball; intraocular fluids-types, formation, circulation. Drainage and functions; image formation – schematic eye, errors of refraction; accommodation. Retina – layers; photochemistry of vision – the process of photoelectric transduction dark adaptation and light adaptation; acuity and field of vision, colour vision and colour blindness. Iris and pupil – components, innervations and functions; light reflex.Visualpathway – organization, functions and effect of lesions.

HEARING: Functional anatomy of the auditory apparatus. Auditory pathways. Role of external and middle ear in hearing, inner ear- process of mechanic-electrical transduction. Tests for hearing and audiometry in practicals.Vestibular components and functions.

TASTE: The receptor, pathways, modalities mechanism, properties and effect of lesions – abnormal taste sensation.

SMELL: The receptor, pathways, mechanism, properties and abnormalities.

(15 HOURS)

I M.B.B.S PHYSIOLOGY

EVALUATION SCHEME WRITTEN: DISTRIBUTION OF CHAPTERS IN THEORY PAPERS

PAPER I **80 marks** **03 Hours**

1. Blood and body fluids
2. Cardiovascular system
3. Respiratory system
4. Gastro-intestinal tract
5. Renal physiology, micturition, skin and thermoregulation.

PAPER II **80 marks** **03 Hours**

6. General physiology of muscle and nerve
7. Endocrine physiology
8. Physiology of reproduction
9. Central nervous system
10. Special senses

PHYSIOLOGY – PAPER I

DURATION: 03 Hours **Maximum: 80Marks**

Answer section A, B & C in separate books provided and section D (MCQ) on the question paper itself.

SECTION 'A' (20marks)

1. Describe the different stages of Erythropoiesis, with suitable diagrams. Explain how anaemia is caused by Vitamin B12 deficiency (10 marks)
2. Describe the chemical regulation of Respiration Justify the dyspnoea that occurs when there is extensive lung damage.(10 marks)

SECTION 'B' (4x5=20 marks)

3. (a) List any four factors that influence venous return. How does venous return affect cardiac output?
   (b) Define peripheral vascular resistance. Enumerate the factors that influence it.
   (c) Explain the term "Autoregulation of Blood flow" with an example.
   (d) Outline the mechanism of Reabsorption of sodium by the Renal Tubules, with schematic diagrams.

SECTION 'C' (4x5=20 marks)

4. (a) Explain the term 'peptic Ulcer'. Give its pathophysiological basis.
   (b) Compare obstructive with hemooytic jaundice with reference to
      a) Van Denberg's Test
      b) Urinary urobilinogen and
      c) Stool fat content. Give reasons for the differences.
   (c) Describe the second stage of Deglutition.
   (d) Explain micturition reflex, with a diagram

SECTION 'D' (20 marks)

20 Multiple choice questions x 1= 20 marks.

Type: one most appropriate answer out of Four alternatives.

*Applied physiology.

PHYSIOLOGY – PAPER II

DURATION:03 HOURS **Maximum: 80 marks**

Answer section A, B & C in separate books provided and section D (MCQ) on the question paper itself.

SECTION 'A' (20 marks

1. Describe the origin, course, termination and functions of corticospinal tracts. List the features of a lesion of the tracts in the right internal capsule. (10 marks)
2. Describe the biosynthesis and metobolic actions of the iodine containing thyroid hormones. List the features of cretinism.(10 marks)

SECTION 'B' (20 marks)

3. (a) List the features of cerbellar lesion

(b) Draw a labelled diagrams of the visual pathways. Indicate the effect of a lesion in right optic tract on visual fields.

(c) Explain briefly the functions of middle ear.

(d) Write steps in the transmission of an impulse across Neuromuscular junction in skeletal muscle.

SECTION 'C' (4x5 =20 marks)

4. (a) Explain the term 'Active Transport' and 'Facilitated Diffusion', with an example each.

(b) Compare with diagrams, the transmission of an impulse along a myelinated and an unmyelinated nerve fibre

(c) How do you detect ovulation time? Explain its clinical significance.

(d) List the functions of sertolicells .

SECTION 'D' (20 marks)

20 Multiple choice questions x 1= 20 marks.

Type: one most appropriate answer out of Four alternatives.

*Applied physiology.

BIOCHEMISTRY

Biochemistry including medical physics and molecular biology

(i) GOAL:

The broad goal of the teaching of undergraduate students in biochemistry is to make them understand the scientific basis of the life processes at the molecular level and to orient them towards the application of the knowledge acquired in solving clinical problems.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe the molecular and functional organization of a cell and list its subcellular components;

b. delineate structure, function and inter-relationships of biomolecules and consequences of deviation from normal;

c. summarize the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity is altered;

d. describe digestion and assimilation of nutrients and consequences of malnutrition

e. integrate the various aspects of metabolism and their regulatory pathways;

f. explain the biochemical basis of inherited disorders with their associated sequelae;

g. describe mechanisms involved in maintenance of body fluid and pH homeostasis;

h. outline the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application in medicine;

i. summarize the molecular concept of body defences and their application in medicine.

j. outline the biochemical basis of environmental health hazards, biochemical basis of cancer and carcinogenesis;

k. familiarise with the principles of various conventional and specialized laboratory investigations and instrumentation analysis and interpretation of a given data;

l. suggest experiments to support theoretical concepts and clinical diagnosis.

(B) Skills:

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

a. make use of conventional techniques/instruments to perform biochemical analysis relevant to clinical screening and diagnosis;

b. analyze and interpret investigative data;

c. demonstrate the skills of solving scientific and clinical problems and decision making.

(C) Integration

The knowledge acquired in biochemistry shall help the students to integrate molecular events with structure and function of the human body in health and disease

I MBBS SYLLABUS IN BIOCHEMISTRY

Duration of Course	:	1 year
Total No. of hours	:	240
Theory		80
Tutorial		40
Practical		70
Demonstration		30
Seminars		20

DETAILS OF THE CURRICULUM

THEORY:

	Name of the Unit	No. of Hours
1.	Introduction to Biochemistry	1
2.	Water , pH and buffers	1
3.	Chemistry of Carbohydrates: a) Classification of Carbohydrates b) Structural and functional aspects of Monosaccharides Disaccharides, Homo and Hetero Polysaccharides, Fibers,Isomerism,Glycosides and aminosugars	4
1.	Chemistry of Lipids: a) Classification b) Structural and functional aspects of simple, compound and Derived lipids including saturated, unsaturated and essential Fatty aids ,cholesterol,rancidity.	3
2.	Proteins: a) Classification & functional aspects b) Classification and properties of amino acids c) Outlines of elucidation of protein structure d) Biologically active peptides e) Electrophoretic separation of proteins f) Separation of Amino acids by chromatography	5

3. Nucleic Acids: 2
   a) Bases, nucleotides, Nucleic acids, (structural and functional aspects)
   b) synthetic nucleotides

7. Enzymes: 4
   a) Classification
   b) Mechanism of Enzyme action
   c) Enzyme kinetics
   d) Factors affecting enzyme activity
   e) Isoenzymes
   f) Coenzymes

   g) Enzyme inhibition
   h) Cellular & Plasma enzymes
   i) Diagnostic importance of enzymes
   j) Regulation of enzyme activity

8. Biological Oxidation: 2
   a) Bioenergetics
   b) Exergonic & Endergonic reaction
   c) Oxidases
   d) Electron Transport Chain
   e) Oxidative phoshorylation
   f) High and low energy Compounds

9. Vitamins: 7
   a) Classification
   b) Structure, Sources, Daily requirement, Physiological role and deficiency disorders of Fat Soluble vitamins – A,D,E& K and water soluble Vitamin-B complex and Vit.C

10. Carbohydrate Metabolism 7
    Citric Acid cycle
    a) Digestion and Absorption
    b) Metabolism of Glucose
       i) Entry of Glucose into cells
       ii) Glycolysis
       iii) Rapaport – Leubering Cycle
       iv) Pyruvate Dehydrogenase complex
       v) Gluconeogenesis
       vi) Glycogenesis
       vii) Glycogenolysis
       viii) Glycogen storage diseases
       ix) HMP shunt pathway
       x) Uronic acid pathway
       xi) Metabolism of galactose & fructose
       xii) Blood glucose homeostasis, glucose tolerance test, renal Glycosuria, Diabetes mellitus and hypoglycemia

11. Metabolism of Proteins: 7

a) Protein Digestion & Absorption
b) General Pathways of metabolism including
c) Transamination & Deamination and Ammonia transport
d) Urea Cycle
e) Metabolism of individual amino acids & Inborn errors
f) Creatine& Creatinine
g) GABA,polyamines

12. Metabolism of Nucleic Acids: and genetics 7
a) Outlines of Metabolism of Purines & Pyrimidines & Metabolic disorders
b) DNA replication and transcription
c) Protein Biosynthesis (Translation)
d) Regulation of Gene Expression
e) Outlines of Genetic Engineering

13. Lipid Metabolism: 6
a) Digestion & Absorption
b) Plasma Lipids
c) Mobilization of Fats from adipose tissue
d) Oxidation of Fatty acids
e) Biosynthesis of Fatty acids
f) Metabolism of Phospholipids and triacylgycerols
g) Metabolism of Ketone bodies
h) Metabolism of Cholesterol
i) Lipoproteins – metabolism and disorders
j) Lipotropic factors, bile acids
k) Chemistry and metabolism of prostaglandins

14. Integration of Metabolism 2
Metabolic integration; liver, adipose tissue, skeletal muscle and brain

15. Hemoglobin strucutre, Functions and Metabolism 2
Porphyrias and Hemoglobinopathies

16. Mineral Metabolism 3
Sodium, Potassium, Calcium, Phosphorus, Magnesium, Magnanese, Sulphur, Iron, Copper, Zinc, Iodine, Cobalt, Fluorine, Selenium and chromium.

17. Nutrition: 2
a) Calorific value
b) Specific Dynamic action
c) Respiratory quotient
d) Energy requirements
e) Balance Diet, Nitrogen balance, Dietary fiber
f) Nutritional disorders kwashiorkor and marasmus

18. Detoxification: 2

19. Hormones: 2
i) General principles of hormonal action
ii) Mechanism of Action and metabolic roles

20 Functional Tests: 5

a) Renal
b) Hepatic
c) Pancreatic
d) Gastric

21	Fluid-Electrolyte and Acid-Base Balance	2
22	Plasma Proteins & C.S.F	2
23	Biological Membranes	1
24	Carcinogenesis & Malignancy	1
		80 hours

Practicals:

A. Qualitative:

1. Reactions of carbohydrates — No. of practical
   a) Glucose
   b) Fructose
   c) Lactose, Maltose
   d) Sucrose
   e) Identification of carbohydrates

2. Reactions of proteins:
   a) precipitation reactions
   b) General colour reactions of proteins
   c) Albumin
   d) Casein
   e) Gelatin and peptone
   f) Identification

3. Normal constituents of Urine

4. Abnormal constituents of urine
   Identification of Abnormal constituents of urine

B.Quantitative:

1. Blood glucose
2. Blood urea
3. S.Protiens
4. Urinary creatinine

C. Demonstrations:

1 Chromatography
2 Electrophoresis
3 GTT
4 CSF Analysis
5 S.Uric acid estimation
6 S.Bilirubin estimation

Revision and conduct of tests	=	5 practicals
Tutorials and group discussions	=	35 practicals

NOTE : Each Practical carries two hours

Recommend Books:

1. Review of Biochemistry	-	Harper
2. Text book of Biochemistry for Medical Students	-	D.M.Vasudevan&Sreekumari
3. Biochemistry	-	U.Satyanarayana
4. Text book of Medical Biochemistry	-	M.N.Chatterjea&Ranashinde
5. Lippincott's Illustrated Reviews Biochemistry	-	Pamela C. Champe& Richard A Harvey

Reference Books:

Biochemistry	-	Lehninger
Biochemistry	-	Stryer
Text book of Clinical Biochemistry	-	Tietz
Clinical Biochemistry	-	Varley

Syllabus for University Biochemistry I-MBBS Exam

Paper-I

1. Enzymes
2. Biological Oxidation
3. Chemistry, Digestion, absorption, metabolism and inborn errors of carbohydrates and lipids.
4. Vitamins
5. Mineral metabolism
6. Nutrition

Paper-II

7. Chemistry, digestion, absorption of proteins and metabolism of Amino acids and inborn errors of them
8. Nucleic acid chemistry and metabolism of nucleotides
9. Genetics – DNA replication & Repair, Transcription, Translation, Gene regulation, PCR, DNA recombinant technology, blotting techniques
10. Hormones, Thyroid function tests
11. LFT, RFT. Clinical biochemistry
12. Plasma proteins and Immunoglobulins and membranes
13. Acid-base balance and water-Electrolyte balance
14. Detoxification
15. Hemoglobin and porphyrias
16. Carcinogenesis

Biochemistry - Model Question Paper – I-MBBS

Paper I

Time: 3 hours **Total Marks : 80**

Section – A **2 x 10 marks = 20 marks**

1. Classify enzymes & explain the factors influencing the enzyme action.
2. Explain β-oxidation & its energetics.

Section – B

Short Notes **4 x 5 marks = 20 marks**

3. G.T.T
4. Folate trap
5. Active form of thiamine and its biochemical role
6. Oxidative phosphorylation

Section – C 4 x 5 marks = 20 marks

Write briefly on

7.BMR
8. Iron Metabolism
9.Reverse cholesterol transport
10.Blood glucose regulation

Section – D **4 x 5 marks = 20 marks**

11. Explain Rapaport Leubering cycle and its importance..
12. What is the normal blood Cholesterol? Mention the causes for hypercholesterolemia and its complications?
13. Importance of HMP shunt pathway
14. What is the normal serum calcium level? How blood calcium level is maintained?.

Biochemistry - Model Question Paper – I – MBBS

Paper – II

Time: 3 hours **Total Marks : 80**

Section – E 2 x 10 marks = 20 marks

1. Explain the formation transport and disposal of NH_3. Mention two inherited disorders of urea cycle.
2. What is the normal serum bilirubin level. Explain the metabolism of bilirubin and classify jaundice.

Section – F 4 x 5 marks = 20 marks

Write short notes on :

3. Metabolic acidosis
4. Glomerular Function tests
5. Mechanism of Hormone action

6. Polymerase chain reaction

Section – G

Write briefly on **4 x 5 marks = 20 marks**

7.Phenylketonuria
8. LeschNyhan syndrome
9. Detoxification
10. Oncogenes

Section – H **4 x 5 marks = 20 marks**

11. Membrane transport
12. Name the hormones derived from tyrosine and their important role
13. Sickle cell anemia
14. What is the normal serum albumin level? Mention the causes of hypoalbuminemia**II.**

DISTRIBUTION OF MARKS TO VARIOUS DISCIPLINES:

(A) First Professional Examination (Pre-Clinical Subjects):-

Biochemistry

Particulars	**Marks (Max. 300)**	
	Maximum	**Passing (Min)**
Theory (I & II)*	80 + 80	90
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

*** One applied question of 10 marks in each paper**

INTRODUCTION TO HUMANITIES AND COMMUNITY MEDICINE

(i) GOAL

Including introduction to the subjects of Demography, Health economics, Medical Sociology, Hospital Management, Behavioral sciences inclusive of Psychology.

(ii) OBJECTIVES:

(A) Knowledge:

The student shall be able to:

a. explain the principles of sociology including demographic population dynamics;

b. identify social factors related to health, disease and disability in the context of urban and rural societies.

c. appreciate the impact of urbanization on health and diseases;

d. observe and interpret the dynamics of community behaviour;

e. describe the elements of normal psychology and social psychology;

f. observe the principles of practice of medicine in hospital and community setting.

(B) Skills:

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

a. principles of practice of medicine in hospital and community settings and familiarization with elementary nursing practices

b. art of communication with patients including history taking and medico-social work.

Teaching of community medicine, shall be both theoretical as well as practical. The practical aspects of the training programme shall include visits to the health establishments and to the community where health intervention programmes are in operation.

In order to inculcate in the minds of the students the basic concept of community medicine to be introduced in this phase of training, it is suggested that the detailed curriculum drawn shall include at least 30 hours of lectures, demonstrations, seminars etc., together with at least 15 visits of two hours each.

PARA-CLINICAL SUBJECTS OF PHASE II

PATHOLOGY

(i) GOAL:

The broad goal of the teaching of undergraduate student in Pathology is to provide the students with a comprehensive knowledge of the mechanisms and causes of disease, in order to enable him/her to achieve complete understanding of the natural history and clinical manifestations of disease.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe the structure and ultrastructure of a sick cell, mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.

b. Explain the patho-physiological process which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it;

c. Describe the mechanisms and patterns to tissue response to injury such that he/she can appreciate the pathophysiology of disease process and their clinical manifestations;

d. Correlate normal and altered morphology (gross and microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

(B) Skills:

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

a. describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results;
b. perform the simple bed-side tests on blood, urine and other biological fluid samples;
c. draw a rational scheme of investigations aimed at diagnosing and managing the cases of common disorders;
d. understand biochemical/physiological disturbances that occur as a result of disease in collaboration with pre-clinical departments.

(C) Integration

At the end of training he/she shall be able to integrate the causes of disease and relationship of different etiological factors (social, economic and environmental) that contribute to the natural history of diseases most prevalent in India.

MBBS II nd Year SYLLABUS FOR DEPARTMENT OF PATHOLLGY

GENERAL PATHOLOGY

Cell Injury and Cellular Adaptation :

Reversible cell injury, irreversible cell injury, pathologic calcification, intracellular accumulations, extra cellular accumulations
Cellular adaption, pigment disorders.

Inflammation and Repair :

Acute inflammation , chemical mediators of inflammation, chronic inflammation, repair , wound healing by primary and secondary union, healing in specific site including bone healing.

Circulatory Disturbances :

Congestion, edema, thrombosis, embolism, infarction, shock.

Neoplasia :

Definitions. Nomenclature. Biology of tumor growth. Benign and malignant tumors. Epideminology of cancer. Molecular basis of cancer. Invasion and metastasis. Molecular basis of multistep carcinogenesis. Carcinogenic agents and their cellular interactions. Tumor immunity. Clinical features of tumors. Grading and staging of tumors. Lab diagnosis of cancer.

Disease of Immunity :

General features of the immune system. Hypersensitivity reactions –Mechanisms of hypersensitivity reactions. Auto immune disease, mechanisms, SLE, Rheumatoid arthritis, Amyloidosis.

MBBS – PATHOLOGY MODEL QUESTION PAPER

PATHOLOGY – I

SECTION –A(Time : 3hours)

1. 25 years married with history of bleeding per vagina, giddiness and dyspnoea with Pallor of tongue conjunctiva and koiloncкhia.
   a) What is the provisional diagnosis ?
   b) Describe the pathogenesis of disease
   C) Mention various laboratory tests for confirmation. **(2+3+5=10)**
2. 30 years male with history of severe pain in calf muscles later developed hemiplegia and Bell's Palsy.
   a) What is the most probable diagnosis ?
   b) Describe the pathogenesis of disease.
   c) Describe morphology and fate of the lesion. **(2+3+5=10)**

SECTION – B

3. Write shots notes on: **(5 x 4= 20)**
   a) Hemophilia
   b) Laboratory finding in multiple myeloma
   c) Screeining of blood unit before transfusion
   d) Pathogenesis of sickle cell anemia.
   e) Proteinuria

SECTION – C

4. a) Klinfefelter's syndrome **(5 x 4= 20)**
   b) Mechanism of auto immune disese
   c) Routes of spread of tumour
   d) Mechanisma of Apoptosis
   e) Pathogenesis of cardiac oedema

SECTION -D

5. a) PCV **(5x4=20)**
   b) Coombs test
   c) Test for urine alubmin
   d) Reticulocyte count
   e) Megaloblast

(B) Second Professional Examination (Para-Clinical Subjects):

PATHOLOGY

Particulars	**Marks (Max. 300)**	
	Maximum	**Passing (Min)**
Theory (I & II)	80 + 80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

MICROBIOLOGY

(i) GOAL:

The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. state the infective micro-organisms of the human body and describe the host parasite relationship;

b. list pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them;

c. state or indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.

d. Describe the mechanisms of immunity to infections;

e. Acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases;

f. Apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections;

g. recommend laboratory investigations regarding bacteriological examination of food, water, milk and air.

(B) Skills:

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

a. plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent;

b. identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents;

c. perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, filarial, gram staining and Acid Fast Bacilli (AFB) staining and stool sample for ova cysts etc.

d. use the correct method of collection, storage and transport of clinical material for microbiological investigations.

(C) Integration

The student shall understand infectious diseases of national importance in relation to the clinical, therapeutic and preventive aspects.

MBBS MICROBIOLOGY SYLLABUS

CI-GENERAL BACTERIOLOGY

History of microbiology, Microscopy Types of microscope: Staining Methods, Morphology of Bacteria, Nutrition and growth of Bacteria, Culture Media & Cultivation, Identification of bacteria, Sterilization & Disinfection, Bacterial Genetics, Antimicrobials & Chemotherapy, Normal flora, Microbial pathogenicity,

C2-IMMUNOLOGY

Immunity, Immune system, Hypersensitivity Reaction, Autoimmunity, TransplantationImmunology Antigen, Antibody, Antigen-Antibody Reaction, Complement system, Structure and Functions of the, Tumour Immunology, Immuno Deficiency Disorder, Immunohematology, Immunoprophylaxis.

UNIT 3- SYSTEMIC BACTERIOLOGY

I. ***Gram Positive Cocci:- Staphylococcus, Streptocococcus, Pneumococcus,***
II. ***Gram Negative Cocci:- Neisseria Gonorrhoeae, Neisseria Meningitidis***
III. ***Gram Positive Bacilli:- CornyebacteriumDiphtheriae, Bacillus Anthracis, Bacillus Cereus***
IV. ***Anaerobic Bacteria:- Clostridium Tetani, Clostridium Perfringens, Clostridium Botulinum, Clostridium Difficile, Non-Sporing Anaerobes***
V. ***Enterobacteriaceae:- Escherichia Coli, KlebsiellaSpp, Proteus Spp, ShigellaSpp, Salmonella Spp, Intestinal Salmonellae,***
VI. ***Vibrio :-Vibrio Cholera, Halophilic Vibrios, Aeromonas And Plesiomonas***
VII. ***Pseudomonas:- Pseudomonas Aeruginosa, StenotrophomonasMaltophila, BurkholderiaCepacia, Burkholderia Mallei And GlandersBurkholderia Pseudo Mallei And Melioidosis***
VIII. ***Other Gram Negative Bacteria:- Yersinia Pestis, Yersinia Enterocolitica, PasteurellaMultocida, FrancisellaTularensis***
IX. ***Hemophilus:- H. Influenza***
X. ***Bordetella:- B. Pertussis***
XI. ***Brucella:-***
XII. ***Mycobacterium:- M.Tuberculosis, M. Leprae And Leprosy, Non-Tuberculous Mycobacteria***
XIII. ***Spirochetes:-Treponema Pallidum & Syphilis, BorreliaRecurrentis (Relapsing Fever), BorreliaBurgdorferi, Leptospira,***
XIV. ***Ricketssiae:-RicketssiaRicketsii, R. Prowazekii, R. Typhi, OrientiaTsutsugamuzhi, CoxiellaBurneti.***
XV. ***Mycoplasma & Chlamydia:- Mycoplasma Pneumoniae &Hominis, Chlamydia Trachomatis, C. Pneumoniae, C. Psittaci&Twar Agents.***
XVI.. ***Anaerobic Actinomycetes&Actinomycosis, Nocardia***
XVII. ***Miscellaneous Bacteria:-Listeria Monocytogenes, KlebsiellaGranulomatis, StreptobacillusMoniliformis, Spirillum Minus, Campylobacter Helicobacter Pylori, Legionella Pneumophila***

C 4 PARASITOLOGY

General Parasitology- Introduction, Protozoa:-Intestinal Amoebae, Free – Living Amoebae, Intestinal, Oral & Genital Flagellates, Blood Parasites, Coccidian Parasites, Microsporidia, Helminths, Cestodes, Trematodes, Nematodes, Filarial Nematodes, Laboratory Diagnostic Parasitology Procedures

C 5 VIROLOGY

General Properties Of Viruses, Laboratory Diagnosis Of Viral Infections, Virus –Host Interactions, Bacteriophages, Pox Viruses, Papovavirus, Parvo Virus, Human Herpes Viruses, Herpes Simplex Viruses, Varicella Zoster Virus, Cytomegalo Virus, Epstein-Barr Virus, Varicella Zoster Virus(Vzv), Human Herpes Viruses-Hhv-6 Hhv-7 &Kshv (Hhv8), Picorna Viruses, Orthomyxoviruses, Paramyxoviruses, Arbo Viruses, Rhabdo Viruses, Coronavirus, Slow Viruses, Reo Viruses, Adeno Viruses, Oncogenic Viruses

C6 MYCOLOGY
General Aspects of fungi, Superficial Mycoses, Subcutaneous Mycoses, Systemic And Opportunistic Mycoses, Miscellaneous Topics.

C7 APPLIED MICROBIOLOGY
Collection & Transport Of Specimens, Normal Microbial Flora Of The Human Body, Immunoprophylaxis, Healthcare Associated Infections & Standard Precautions, Biomedical Waste Management, Clinical Microbiology, Urinary Tract Infections, Blood Stream Infections, Respiratory Tract Infections, Pyrexia Of Unknown Origin, Meningitis, Sexually Transmitted Infections, Skin & Soft Tissue Infections, Zoonosis,Diarrhoea& Food Poisoning.

QUESTION PAPER SETTER -INSTRUCTION

205-Microbiology--PAPER – I

Maximum 80 marks
Time – 3 hours

Section – A

(2 X 10 = 20)

Write Essay on

One Question from General microbiology (or) immunology
One Question from Parasitology.

Section – B

Short notes on **(5 X 4 = 20)**

Two Questions from General Microbiology.
Three Questions from Immunology.

Section – C

Short notes on **(5 X 4 = 20)**

Three Questions from Parasitology
Two Questions from Immunology

Section – D

Short notes on **(5X4 = 20)**

Two Questions from General Microbiology.
One Question from Parasitology.
Two Questions from Immunology

QUESTION PAPER SETTER -INSTRUCTION

206-Microbiology--PAPER – II

Maximum 80 marks
Time – 3 hours

Section – E

Write Essay on **(2X 10= 20)**

One Question from Systematic Bacteriology.
One Question from Virology

Section – F

Short notes on **(5X 4= 20)**

Three Questions from Systematic Bacteriology
Two Questions from Virology

Section – G

Short notes on **(5X 4= 20)**

Three Questions from Mycology
Two Questions from Applied microbiology

Section – H

Short notes on **(5X 4= 20)**

Two Questions from Virology
Two Questions from Mycology
One Question from Systematic Bacteriology

Total marks:
Theory paper I&II 2X80 = 160
Internal assessment (50+10) = 60
Practicals + vivaoce (60+20) = 80

Toal marks = 300

MICROBIOLOGY

Particulars	Marks (Max. 300)	
	Maximum	Passing (Min)
Theory (I & II)	80 + 80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

PHARMACOLOGY

(i) GOAL:

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

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs;

b. list the indications, contraindications, interactions and adverse reactions of commonly used drugs;

c. indicate use of appropriate drug in a particular disease with consideration to its cost, efficacy and safety for

    i. individual needs:
    ii. mass therapy under national health programmes.

d. describe the pharmacokinetic basis, clinical presentation, diagnosis and management of common poisonings;

e. list the drugs of addiction and recommend the management;

f. classify environment and occupational pollutions and state the management issues;

g. indicate causations in prescription of drugs in special medical situations medical situations such as pregnancy, lactation, infancy and old age;

h. integrate the concept of rational drug therapy in clinical pharmacology

i. state the principles underlying the concept of 'Essential Drugs';

j. evaluate the ethics and modalities involved in the development and introduction of new drugs;

(B) Skills:

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

a. prescribe drugs for common aliments;

b. recognize adverse reactions and interactions of commonly used drugs;

c. observe experiments designed for study of effects of drugs, bioassay and interpretation of the experimental data;

d. scan information on common pharmaceutical preparations and critically evaluate drug formulations;

(C) Integration

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

I DETAILS OF LECTURES: Total 100 Hours

A. GENERAL PHARMACOLOGY 14 Hours.

1. Introduction 1 Hour.
2. Pharmacokinetics 4 Hours.
3. Routes of Administration, Dosage forms, New drug delivery system 2 Hours.
4. Mechanism of drug action 1 Hour.
5. Bioassay 1 Hour.
6. Drug toxicity and Therapeutic Index 1 Hour.
7. Factors modifying drug response 1 Hour.
8. Pharmacogenetics, Teratogenicty 1 Hour.
9. Drug Interactions 1 Hour.
10. Clinical Evaluation of drugs, rational drug use, Essentional drugs 1 Hour

B. AUTONOMIC NERVOUS SYSTEM 10 Hours.

1. Adrenergic drugs 3 Hours.
2. Adrenergic blockers 2 Hours.
3. Cholinergic and Cholinergic blockers 4 Hours.
4. Skeletal Muscle Relaxants 1 Hour.

C. CENTRAL NERVOUS SYSTEM 16 Hours.

1. General Anaesthetics and PreanaestheticMedication 3 Hours.
2. Sedative and Hypnotics 2 Hours.
3. Antiepileptic drugs 2 Hours.
4. Opioid Analgesics 2 Hours.
5. Nonopioid analgesics & Anti-inflammatory Agents 2 Hours.
6. Psychopharmacology 3 Hours.
7. Local Anaesthetics 1 Hour.
8. Drug dependence – Alcohol 1 Hour.

D. AUTACOIDS 3 Hours.

1. Histamine, Antihistamine 1 Hour.
2. 5HT and its antanonists 1 Hour.
3. Angiotensin, Kinins, Prostaglandins 1 Hour.

E. RESPIRATORY SYSTEM 2 Hours.

1. Pharmacotherapy of Cough, and Bronchial Asthma **2 Hours.**

F. CARDIO VASCULAR SYSTEM 10 Hours.

1. Pharmacotherapy of CHF 2 Hours.
2. Pharmacotherapy of Hypertension 3 Hours.
3. Antiarrhythmic drugs 2 Hours.
4. Visodilators and Antianginal drugs 1 Hour.
5. Pharmacotherapy of Shock 1 Hour.
6. Hypolipidaemic agents 1 Hour.

G. BLOOD AND BLLOD FORMING ORGANS 3 Hours.

H. RENAL SYSTEM 2 Hours.

Diuretics and Antidiuretics 2 Hours.

I GASTRO INTESTINAL TRACT **3 Hours.**

Drugs acting on GIT 3 Hours.

J. DRUGS ACTING ON UTERUS **1 Hour.**

K. ANTIBIOTICS AND CHEMOTHERAPEUTIC AGENTS **21 Hours.**

1. Introduction to Chemotherapy 1 Hour.
2. Sulphonamides 1 Hour.
3. Quinolones 1 Hour.
4. Penicillins, STD 2 Hours.
5. Macrolides and others 1 Hour.
6. Aminoglycoside Antibiotics 1 Hour.
7. Cephalosporins 1 Hour.
8. Tetracyclines and Chloramphenicol 1 Hour.
9. Antifungal antibiotics 1 Hour.
10. Antiviral agents 1 Hour.
11. TB 1 Hour.
12. Leprosy 1 Hour.
13. Malaria 2 Hours.
14. Amoebiasis 1 Hour.
15. Helminthiasis 1 Hours.
16. Malignancy 3 Hours.
17. Antiseptics and Disinfectants 1 Hour.

L. ENDOCRINOLOGY **9 Hours.**

1. Introduction & Growth Hormone 1 Hour.
2. Thyroid and Antithyroid drugs 1 Hour.
3. Insulin and Oral Hypoglylycemic agents 2 Hours.
4. Adrenal Cortical hormones 1 Hour.
5. Sex Hormones, Antifertility agents
   Ovulation inducing drugs 2 Hours.
6. Androgens and Anabolic steroids 1 Hour.
7. Calcium, Parathormone, Vit. D 1 Hour.

M. MISCELLANEOUS **4 Hours.**

1. Gout and Rheumatoid Arthritis 1 Hour.
2. Metals and Antagonists 1 Hour.
3. Immunosuppressants 1 Hour.
4. Dermatological Pharmacology 1 Hour.

PRACTICAL PHARMACOLOGY

I. CLINICAL PHARMACY

A. Dosage formulations.
B. Dosage calculations.
C. Chemical test to identify drugs in biologic fluids
D. Special drug delivery system

II. CLINICAL PHARMACOLOGY

A. ADR & MOA Charts
B. Prescription Writing and Audit
C. Pharmacoeconomics
D. Drugs used in Emergency conditions
E. Clinical problems & drug interactions
F. Manakins for demonstration

G. Therapeutic guidelines
H. Pharmacovigilance

IIIEXPERIMENTAL PHARMACOLOGY

A. Pharmacodynamic Charts
B. Pharmacokinetic Charts
C. Computer assisted learning
D. Drug administration techniques

PRACTICALS **50 Sessions = 100 Hours**

A.CLINICAL PHARMACY: **13 Sessions**

I. Dispensing Routine 1 Session
II. Mixture:

1. Carminative Mixture
2. Sodium Salicylate Mixture

III. Percentage Solution: 1 Session

1. 5% Dextrose Solution
2. Sodium Chloride IV
3. Potassium Permanganate

IV. Powders:

1. A.P.C.
2. O.R.S.

V. Ointment & Paste: 1 Session

1. Whitfield's Ointment.
2. Zinc Oxide Paste.

VI. Tincture Iodine & Calamine Lotion 1 Session

VII. Castor Oil Emulsion
VIII. Special drug delivery system 3 Sessions

IX. Dosage calculations 2 Sessions

X. Chemical test to identify Drugs in biological solutions 4 Sessions

B) CLINICAL PHARMACOLOGY **25 SESSIONS**

I ADR & MOA Charts 5 Sessions

II Prescription Writing and Audit 5 Sessions

III Pharmacoeconomics 1 Sessions

IV Pharmacovigilance 2 Sessions

V Drugs used in Emergency conditions 5 Sessions

VI Clinical problems & drug interactions 3 Sessions

VII Manakins for demonstration 3 Sessions

VIII Therapeutic guidelines 1 Sessions

C)EXPERIMENTAL PHARMACOLOGY 10 SESSIONS

A. Pharmacodynamic Charts 3 Sessions
B. Pharmacokinetic Charts 3 Sessions
C. Computer assisted learning 2 Sessions
D. Drug administration techniques 2 Sessions

D) **REVISION 2 SESSIONS**

TEACHING – LEARNING SESSIONS 100 Hours

A. CLINICAL PHARMACOLOGY 4 Hours

PHARMACOVIGILANCE – ADR Monitoring

A. STRUCTURED DISCUSSION ON THE FOLLOWING TOPICS (SYMPOSIUM) 20 Hours

1. New drug delivery systems.
2. Bronchial Asthma.
3. Hypertension.
4. CCF.
5. Peptic Ulcer.
6. Diabetes Mellitus.
7. Parkinsonism.
8. Tuberculosis.
9. Malaria.
10. Leprosy.
11. Opioids.
12. NSAIDS.
13. Antiepileptics.
14. Hyperlipidaemias.
15. Diuretics & Shock.
16. Antianginal Drugs.
17. Antianginal Drugs.
18. Antiviral Drugs.
19. Antifungal Drugs.
20. Anthelmintics.

INTEGRATED TEACHING SEMINARS 10 Hours

TOPICS	PARTICIPATING DEPARTMENT
1. Antiepileptics	Medicine
2. Peptic Ulcer	Surgery, Physiology
3. Hyperlipidaemia	Biochemistry, Medicine
4. Psychopharmacology	Psychiatry
5. Myocardial Infarction Management	Medicine, Cardiology
6. Congestive Cardiac Failure	Medicine, Cardiology

TUTORIALS 20 Hours

CPCSEA – guidelines for Animal welfare **2 Hours**

SCHEME OF PRACTICAL EXAMINATION

		Marks
Drugs in emergency conditions		10
Prescription writing		10
Chemical test		10
Pharco economics		5
ADR & MOA charts	5	
Dosage calculation		5
Drug formulations		5
Clinical problems		5
Graphs	5	

Total		60

A. STRUCTURED DISCUSSION ON THE FOLLOWING TOPICS (SYMPOSIUM)

1. New drug delivery systems.
2. Bronchial Asthma.
3. Hypertension.
4. CCF.
5. Peptic Ulcer.
6. Diabetes Mellitus.
7. Parkinsonism.
8. Tuberculosis.
9. Malaria.
10. Leprosy.
11. Opioids.
12. NSAIDS.
13. Antiepileptics.
14. Hyperlipidaemias.
15. Diuretics & Shock.
16. Antianginal Drugs.
17. Antianginal Drugs.
18. Antiviral Drugs.
19. Antifungal Drugs.
20. Anthelmintics.

B. INTEGRATED TEACHING TOPICS

TOPICS	PARTICIPATING DEPARTMENT
1. Antiepileptics	Medicine
2. Peptic Ulcer	Surgery, Physiology
3. Hyperlipidaemia	Biochemistry, Medicine
4. Psychopharmacology	Psychiatry
5. Myocardial Infarction Management	Medicine, Cardiology
6. Congestive Cardiac Failure	Medicine, Cardiology

(B) Second Professional Examination (Para-Clinical Subjects):

PHARMACOLOGY

Particulars	**Marks (Max. 300)**	
	Maximum	**Passing (Min)**
Theory (I & II)	80 + 80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

*** One applied question of 10 marks in each paper**

FORENSIC MEDICINE INCLUDING TOXICOLOGY

(i) GOAL:

The broad goal of the teaching of undergraduate students in Forensic Medicine is to produce a physician who is well informed about medicolegal responsibilities in practice of medicine. He/She will also be capable of making observations and inferring conclusions by logical deductions to set enquiries on the right track in criminal matters and connected medicolegal problems. He/She acquires knowledge of law in relation to medical practice, medical negligence and respect for codes of medical ethics.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. identify the basic medicolegal aspects of hospital and general practice;
b. define the medicolegal responsibilities of a general physician while rendering community service either in a rural primary health center or an urban health center;
c. appreciate the physician's responsibilities in criminal matters and respect for the codes of medical ethics;
d. diagnose, manage and identify also legal aspects of common acute and chronic poisonings;
e. describe the medicolegal aspects and findings of post-mortem examination in case of death due to common unnatural conditions and poisonings;
f. detect occupational and environmental poisoning, prevention and epidemiology of death due to common unnatural conditions and poisonings;
g. describe the general principles of analytical toxicology.

(B) Skills:

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

a. make observations and logical inferences in order to initiate enquiries in criminal matters and medicolegal problems;
b. diagnose and treat common emergencies in poisoning and manage chronic toxicity;
c. make observations and interpret findings at postmortem examination;
d. observe the principles of medical ethics in the practice of his profession.

(C) 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.

MODEL SCHEME OF LECTURES IN FORENSIC MEDICINE AND TOXICOLOGY

(as per the Medical council of India (MCI) Recommendations 1997)

II MBBS: III, IV & V semesters. Total Classes : 70 (1 hour each)

INTRODUCTION & JURISPRUDENCE

Classes

I. INTRODUCTION TO FORENSIC MEDICINE 1

1.Definition,synonyms,HistoricalAspects,Modern Forensic Medicine sub divisions, etc.

II. LEGAL PROCEDURE 4

1. Introduction,important Legal Terms(Glossary),Courts,Inquests.
2. Recording of Evidence in Court,MedicalEvidence,Dying Declaration
3. Witness,Doctor in Witness Box,Exhumation
4. Workmen's Compensation Act(Principles).

III. MEDICAL ETHICS 2

1. Introduction,M.C.I& S.M.C: Functions.
2. Registered Medical Practitioner: Duties & Privileges.
3. Infamous Conduct(Professional Misconduct) Punishments,Appeal.
4. Malpractice(Negligence)
5. Consumer protection Act(Principles),Medical indemnity insurance.
6. Consent: in Medical and Medico-legal practice
7. Euthanasia.
8. Consumer Protection Act(CPA/COPRA) 1986 (Amended in 2002)

IV. FORENSIC IDENTITY 2

1. Introduction: Definition,Types,Corpusdelicti,Factors Establishing Identity,Forensic odontology (Basics),DNA Finger printing(Principles)
2. Determination of Age & Sex in Living and Dead individuals.
3. Medicolegal importance of Age.

V. THANATOLOGY 5

1. Introduction: Types of Death: Sematic,Molecular, & Brain stem, Organ Transplantation.
2. Sudden Death & Unexpected Death.
3. PM Changes: immediate
4. PM Changes: Early
5. PM Changes: Late Adipocere,Mummification
6. Medicolegal importance of Death.
7. Entomology of the cadaver & Postmortem interval.

VI. MEDICOLEGAL AUTOPSY 2

1. Objectives,Rules,Routine procedures, Negative Autopsy.
2. Skeletal Remains Examination.

VII. ASPHYXIAL DEATHS

1. Introduction,Pathophysiology,General signs & Symptoms of Asphyxia
2. Hanging: Definition,Types,Causes of death,PMFindings,MLI.
3. Stangulation,Suffocation,Traumatic Asphyxia: Definition,Types,Causes of death, PM Findings,MLI.
4. Drowning: Definition,Types,Mechanisms,Causes of death,Medicolegal Aspects.
5. Drowning: PM Findings,Diatom Test.

CLINICAL FORENSIC MEDICINE

VIII. TRAUMA (MECHANICAL INJURIES) 10

1. Introduction: Definition(injury & Hurt),Classification(Clinical).
2. Blunt Force trauma: Abrasions,Contusions, Lacerations (including Complications and MLI)
3. Sharp Force Trauma: Incised,stab and chop wounds(including Complications & MLI)
4. Firearms,Firearminjuries,P.M.Examination of Firearm injury death.
5. Head injury: Mechanisms,injury to scalp,skull,Brain,IntracranicalHaemorrhages.
6. Spinal injuries.
7. Road Traffic Accidents,Medicolegal Aspects of Trauma
8. Injury due to Burns &Scalds,injury due to Electricity,Lightningetc

IX. SEXUAL JURISPRUDENCE 3

1. Explanation & MLI of Virginity,pregnancy,MTP,Criminal Abortion, Delivery,Paternity,impotence,sterility,incest,Rape,Sodomy,Paraphilias.
2. Examination of rape case(in detail)
3. Examination of Sodomy case(in detail).

X. INFANTICIDE 2

1. Definition,Explanation of Viability,Haase'sRule,LiveBirth,Dead Birth, Still Birth,Tests of Live Birth,Time of Survivial,cause& Death.
2. Battered Baby Syndrome & Sudden Infant Death syndrome

XI. FORENSIC PSYCHIATRY 2

1. Explanation of common Psychiatric Terms,Definition and classification of insanity,FeignedInsanity,McNaughten's Rule.
2. Civil & Criminal responsibilities of the Insane, principles of Mental Health Act 1987,restraint of the insane.

TOXICOLOGY

XII. GENERAL PRINCIPLES 5

1. Definitions,Epidemiology of poisoning.
2. M.L.Aspects of poisoning,Laws on poisons-Schedules,IPC Sections (relevant),Duties of Doctors in suspected poisoning.
3. Diagnosis & Management of poisoning(General Measures).
4. Preservation &Despatch of Viscera to FSL.
5. Analytical Toxicology(principles & Basics: Bedside & Common Lab Tests, TLC,HPLC,GC,etc.)
6. Occupational & Environmental Toxicology.
7. Classification of poisons.

XIII. CORROSIVES(CAUSTICS) 2

1. Inorganic: Sulphuric,Nitric and Hydrochloric Acid
2. Organic: phenol,OxalicAcid,Formic Acid.

XIV. IRRITANTS 6

1. Inorganic Non-Metallic-Phosphorus,Halogens.
2. Inorganic Metallic-Arsenic,Lead,Mercury,Copper,Iron,Thallium.
3. Organic(Plant): Abrus,Castor,Croton,Calotropis,Capsium,Semicarpus,Ergot.
4. Organic(Animal): Snake Bite,Insect sting(Bee,Wasp),Envenomation due to Centipede,Scorpions,etc.
5. Mechanical Irritants.

XV. INEBRIANTS 2

1. Ethanel
2. Methanol
3. Ethylene Glycol &Isopropanel
4. Benzediazopines

XVI. SOMNIFEROUS DRUGS,SEDATIVE-HYPNOTICS & SPINAL POISONS 2

1. Opium & Derivatives
2. Barbiturates
3. Strychnine

XVII. DELIRIANTS 2

1. Datura,Cannabis,Cocaine

XVIII. PESTICIDES 2

1. Organophosphates,Carbamates,Organochlorines
2. Pyrethroids,AluminiumPhosphides,etc.

XIX. CARDIOTOXIC POISONS 1

1. Digitalis,Oleander,Acenite,Nicotine

XX. ASPHYXIANTS 2

1.Carbon Monoxide,Cyanide

XXI. HOUSEHOLD POISONS 1

1.Kerosene,CleaningAgents,Disinfectants,Cosmetics,etc.

XXII. THE RAPEUTIC DRUGS 1

1. Salicyiates,Paracetamol,Antidepressants,Antipsychotics, Insulin

XXIII. FOOD POISONING 1

1. Bacterial,Viral,Mushrooms,etc.

XXIV. DRUG ABUSE 1

1. Alcohol,Tobacco,Narcotics,Hallucinogens,Stimulants,etc.

Distribution of Lectures(Hours)

Forensic Medicine	:	42
Toxicology	:	28
Total		70
Practical	:	30

Distribution of Marks (100)

Forensic Medicine	:	70
Toxicology	:	30
Total		100

MODEL SCHEME OF PRACTICALS SCHEDULE IN FORENSIC MEDICINE AND TOXICOLOGY

II MBBS: III, IV & V SEMESTERS Total Hours : 30

Sl.No.	Topics	Hours
I	Demonstration of Models, Specimens, spotters, Bones & Photos (i) Weapons: Blunt, Sharp, Heavy, Firearm etc (ii) Poisons: plants, Animals,Chemicals	8

	(iii) Specimens: Diseases, Wounds of Internal organs, Visceral organs in poisoning (iv) Bones: Skull with mandible, Sternum, Pelvis, Femur & other long bones for both sexes (Male & Female) (v) photographs: Showing Injuries(Mechanical, Thermal & Firearm Wounds), Ligature marks over neck, Hanging posture (Partial hanging), Postmortem changes (early & late changes)	
II	Demonstration of Medico-Legal autopsies at Government KamarajHopital, Chidambaramand discussion regarding objectives, rules and formalities in connection with Medico-Legal Autopsy and sending Viscera to Forensic FSL and preparation of Postmortem certificates.	10
III	Preparing a wound certificate on the basis of data Provided and Interpretation of wounds. Age estimation from subject of X-rays and preparing age certificate External examination of foetus to determine intrauterine age and viability and preparing a report. Certification of potency in assailant in sexual offence case Certification of Victim in sexual offence case Certification of Drunkenness	12

FORENSIC MEDICINE

Particulars	**Marks (Max. 200)**	
	Maximum	**Passing (Min)**
Theory	80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	20 + 20	14
Total	**200**	**100**

COMMUNITY MEDICINE

(i) GOAL:

The broad goal of the teaching of undergraduate students in Community Medicine is to prepare them to function as community and first level physicians in accordance with the institutional goals.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe the health care delivery system including rehabilitation of the disabled in the country;

b. describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare and population control;

c. list epidemiological methods and describe their application to communicable and non-communicable diseases in the community or hospital situation;

d. apply biostatistical methods and techniques.

e. outline the demographic pattern of the country and appreciate the roles of the individual, family, community and socio-cultural milieu in health and disease;

f. describe the health information systems;

g. enunciate the principles and components of primary health care and the national health policies to achieve the goal of 'Health for All';

h. identify the environmental and occupational hazards and their control;

i. describe the importance of water and sanitation in human health;

j. to understand the principles of health economics, health administration, health education in relation to community.

(B) Skills:

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

a. use epidemiology as scientific tool to make rational decisions relevant to community and individual patient intervention;
b. collect, analyze, interpret and present simple community and hospital based data;
c. diagnose and manage common health problems and emergencies at the individual, family and community levels keeping in mind the existing health care resources and in the context of the prevailing socio-cultural beliefs.
d. diagnose and manage maternal and child health problems and advise a couple and the community on the family welfare planning methods available in the context of the national priorities;

e. diagnose and manage common nutritional problems at the individual and community level;
f. plan, implement and evaluate a health education programme with skill to use simple audio-visual aids;
g. interact with other members of the health care team and participate in the organization of health care services and implementation of national health programmes.

(C) Integration

Develop capabilities of synthesis between cause of illness in the environment or community and individual health and respond with leadership qualities to institute remedial measures for this.

RAJAH MUTHIAH MEDICAL COLLEGE

M.B.B.S. COURSE

Subject Name : COMMUNITY MEDICINE Subject Code:301 & 302

Duration : 3-1/2 Years (Ist term to VII term)

Total No. of Hours : 350 to 400 Hours

Distribution of hours for each topic: Hours: Theory – 130 Practical – 270

Topics – Given in Annexure – I

PRACTICAL / CLINICAL

Distribution of Hours : Given in Annexure – II

Distribution of hours for each topic (THEORY) 130 hours

TOPIC	ALLOTTED HOURS
1. Concepts of Health and Disease	04
2. Screening for diseases	04
3. General epidemiology	15
4. Infectious epidemiology	10
5. Communicable diseases	30
6. Non communicable diseases	10
7. National Health Programmes	20
8. Health Care delivery system	05
9. Health care planning and Management	05
10. Environment and health	10
11. Maternal and child health	08
12. Occupational health/Genetic health/Mentel health	07
13. International health	02

DISTRIBUTION OF HOURS AND TOPICS FOR PRACTICAL AND CLINICAL

PRACTICAL	ALLOTTED HOURS
1. Environment	15
2. Family planning methods	10
3. Nutrition	10
4. MCH – vaccines	15
5. Statistics and epidemiological exercise	30

CLINICAL	ALLOTTED HOURS
1.Community Orientation Programme 60 hours	60
2.Family Health advisory programme	45
3.Clinico social case presentation	50
4.Entomology	20
5.PHC visits	15

TOPICS TO BE COVERED UNDER PAPER - I

1. Concept of health and disease
2. Principles of epidemiology and epidemiologic methods
3. Travel Medicine
4. Screening of disease
5. Epidemiology of Communicable diseases
6. Epidemiology of Non-communicable disease
7. Social sciences and medicine
8. Environment and health
9. Nutrition and health
10. Health information and basic medical statistics
11. History of public health

TOPICS TO BE COVERED UNDER PAPER-II

1. Occupational health/genetic health/mental health

2. Preventive obstetrics, Pediatrics and geriatrics
3. Health education and communication
4. Health planning and management
5. Health care of the community
6. International health
7. National health programmes
8. Health economics
9. Demography and family planning.

SCHEME OF TRAINING

1. The entire training and the facilitation of the learning process will be aided through the following methods of learning:

a) Lecture Discussions
b) Practical Demonstrations
c) Field visits – Family Studies / Clinico – Social Case Studies / Family Health Services
d) Project work

Institutional Visits

RECOMMENDED BOOKS

1. Park, K. Text book of preventive & social medicine, 17th Edi. BanarasidasBhanot publishers, 1167, Prem Nagar, Jabalpur, India, 2002.
2. Austin Bradford Hill, & I.D. Hill, Principles of medical statistics, 12th Edi. BI publications Pvt.Ltd., 54, Janpath, New Delhi.
3. Kulkarni A.P. &Baride, J.P. Text book of community medicine, 1st Edi. Vora Medical publications, Mumbai, 1998.

REFERENCE BOOKS

1. MaxcyRosenau, Public Health & Preventive Medicine, 12th Edi. Appleton – Century-Crofts, Norwalk, Connecticut.

2. Walter. W, Holland, Roger Detels& George Knox, Oxford Text book of public health, 1st Ed. Oxford University press, Walton Street, Oxford, 1987.

3. Mahajan, B.K, Methods in Biostatistics for Medical Students & Research Workers, 6th Edi. Jaypee Brothers, Medical publishers, Pvt. Ltd., New Delhi, 1999.

4.Gopalan. C. Rama Sastri, BV. Balasubramanian, Narasenga Rao, BS, Deasthale YG, pant KG: Nutritive Value of Indian Foods. Hyderabad: HIN (ICMR), 1989.

5. National Nutrition Monitoring Bureau: Diet and Nutrition Scenario – A Graphic Presentation. Hyderabad. NIN (ICMR). Mimeographed, 1989.

EVALUATION

No. of Papers : 2 Papers Maximum Marks: 80 for each paper

Duration of each paper : 3 hours for each paper

Topics to be covered in each paper:

GENERAL GUIDELINES TO THE QUESTION PAPER SETTER

1. Essay type question should have 2-3 sub parts
2. Many short answers and explain type of questions(5 shot answers each Section)
3. More of application oriented and problem solving exercises

SPILIT UP OF MARKS
PAPER I And PAPER II SEPERATELY
EACH PAPER
Section - A
I. Essay - 15 marks
II. Wrote Brief Answer – 25 Marks (5 marks for each)
Section – B
I. Essay - 15 Marks
II. Write Brief Answer – 25 marks (5 marks for each)

Practical Exam Max Mark 60
Clinical case presentation 30 marks
Statistical Exercise 20 marks
Spotters 10 Marks
Viva 20
Total Marks Both Theory and practical and viva 300 marks
Students to score 50% in theory and practical separately.

FINAL MBBS PART-I – MODEL QUESTION
THEORY

DATE : TIME : 3 Hours
Max. marks : 80

PART – I
SECTION – A

1.**Essay :**
a)Define natural history of a disease. (2)
b)Mention the different levels of prevention. (3)
c)Explain the different modes of intervention. (10)

2. **Write briefly on :** 5 x 5 = 25
a) Odd's ratio.
b)Oxidation pond.
c)Lathyrism.
d)Normal distribution curve.
e)Incidence and Prevalence.

SECTION - B

3. **Essay** :
a)Define safe and wholesome water (3)
b)Discuss Rapid sand filter. (7)
c) Enumerate the steps in disinfection of wells. (5)

4. **Write briefly on:** 5 x 5 = 25
a)Rule of Halves.

b)Human Development Index.
c) DPT vaccine.
d) Uses of Screening.
e) Directly Observed Treatment Shortcourse.

COMMUNITY MEDICINE (INLCUDING HUMANITIES)

Particulars	Marks (Max. 300)	
	Maximum	Passing (Min)
Theory (I & II)*	80 + 80	90
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

CLINICAL SUBJECTS OF PHASE II AND PHASE III

The teaching and training in clinical subjects will commence at the beginning of Phase II and continue through out Phase III.

The clinical subjects will be taught to prepare the MBBS graduates to understand and manage clinical problems at the level of a practitioner. Exposure to subject matter will be limited to orientation and knowledge required of a general doctor. Maximum attention to the diagnosis and management of most common and important conditions encountered in general practice should be emphasized in all clinical subject areas. Instructions in clinical subjects should be given both in out patient and inpatient during clinical posting.

Each of the clinical departments shall provide integrated teaching calling on pre-clinical, para-clinical and other clinical departments to join in exposing the students to the full range of disciplines relevant to each clinical area of study. Problem approach will be emphasized based on basic social sciences and a continuation of clinical and laboratory syllabi to optimally understand and manage each clinical condition.

The course shall comprise of:

MEDICINE AND ITS ALLIED SPECIALITIES

MEDICINE

(i) GOAL:

The broad goal of the teaching of undergraduate students in Medicine is to have the knowledge, skills and behavioral attributes to function effectively as the first contact physician.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. comprehend the normal disposition, clinically relevant interrelationships functional and cross sectional anatomy of the various structures in the body;

b. diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases;

c. outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interactions, indications and contra-indications;

d. propose diagnostic and investigative procedure and ability to interpret them;

e. provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required;

f. recognize geriatric disorders and their management.

(B) Skills:

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

a. develop clinical skills (history taking, clinical examination and other instruments of examination) to diagnose various common medical disorders and emergencies;

b. refer a patient to secondary and/or tertiary level of health care after having instituted primary care;

c. perform simple routine investigations like haemogram, stool, urine, sputum and biological fluid examinations;

d. assist the common bedside investigative procedures like pleural tap, lumbar puncture, bone marrow aspiration/biopsy and liver biopsy.

(C) Integration

a. with community medicine and physical medicine and rehabilitation to have the knowledge and be able to manage important current national health programmes, also to be able to view the patient in his/her total physical, social and economic milieu;

b. with other relevant academic inputs which provide scientific basis of clinical medicine e.g. anatomy, physiology, biochemistry, microbiology, pathology and pharmacology.

ANNAMALAI UNIVERSITY
FACULTY OF MEDICINE

SYLLABUS

FINAL MBBS PART II MEDICINE GENERAL MEDICINE

Medicine Paper I

1.Cardio vascular system

Functional anatomy, physiology and Investigations of Heart – Chest pain – Breathlessness – Heart failure – Acute Circulatory failure (Cardiogenic shock) – Cardiac arrest and sudden cardiac death – Disorders of heart rate, rhythm and conduction – Atherosclerotic vascular disease – Coronary Heart Disease – Peripheral vascular Disease – Diseases of Heart valves – Congenital Hear Disease – Infective Endo carditis – Diseases of Myocardium – Diseases of the pericardium.

2.Respiratory disease

Functional anatomy, Physiology and Investigations of Respiratory system – Cough – Dyspnoea – Haepmoptysis – Chest pain – Sleep Apnoea – Respiratory failure – Obstructive Airway Lung Diseases (Br.Asthma, COPD) – Infections of the Respiratory system (All types of pneumonias) – Tumours of the bronchus and Lung – Pulmonary Hypertension - Pulmonary Thromboembolism – Corpulmonale – Insterstitial Lung Diseases – Diseases of the nasophargnx, Laryrix and Trachea – Diseases of the Pleural, Diaphragm and Chest wall.

3.Kidney and Genito – Urinary disease

Functional anatomy, physiology and Investigation in Nephrology – Congenital abnormalities of the kidneys and Urinary system (Polycystic kidney) – Obstruction of urinary Tract – Renal stones – Incontinence – Renal failure (Acute & Chronic) – Glomeralo Nephritis (Different types) – Nephrotic syndrome – Acute Interstitial Nephritis – Prostatic Disease – Renal replacement Therapy (Peritoneal Dialysis, Haemodialysis, Renal transplant) – Renal Hypertension – Urinary Tract Infection

4.Endocrine disease

Functional anatomy, physiology and Investigations of Endocrine system – Disorders of Hypothalamus and pituitary gland (Both Hypo and Hyper function). The Thyroid gland (Thyroid enlargement, Hyperthyroidism, Hypothyroidism, Abnormal Thyroid function Test) – The parathyroid gland (Hypercalcemia, Hypocalcaemia)

Diabetes Mellitus:

Etiology – Pathogenesis – Classification – Clinical manifestation – Diagnosis – Acute Metabolic syndromes – Chronic complications of diabetes – Management of Diabetes.

The Adrenal Glands:

Cushing syndrome – Adrenal insufficiency

The Reproductive system:

Male Hypogonadism – Gynaecomastia – Eroctile Impotence – Hirsutism – Infertility – Cryptorchidism – Secondary Amenorrties.

5.Blood disorders

Functional anatomy – Physiology – Investigations in Haematology – Anaemias (Different types) – Leucopenia – Lymphadenopathy – Splenomegaly – Bleeding Disorders – Coagulation Disorders – Haematological Malignancies including all types of Leukaemias& Lymphomas – Myeloma's – Myeloprolicferative Disorders – Venous Thrombosis

6.Nutritional & Environmental and Metabolic disease

Nutritional assessment and Nutritional needs – Obesity – Undernutrition – Vitamins – Minerals – Water, Electrolyte and acid-bace imbalance.

7.Musculoskeletal disorders

Systemic connective tissue disease – Rheumatoid Arthritis – Sero Negative Arthritis – SLE – Scleroderma – Polymyositis – Vasculitis syndrome – Osteoarthritis – Osteoporosis, Osteomalacia – Gout – Paget's disease.

Medicine Paper II

1.Tropical Medicine

Fever – Fever of Unknown origin (FUO)

Bacterial Diseases:

Anthrax, Broucellosis – Leptospirosis – Lyme Borreliosis – Staphylococcal, streptococcal & Meningococcal Infections – Acute water Diahoea – Bacillary Dysentery – Cholers – Typhoid fever – Tetanus.

Viral Diseases:

HIV infections including AIDS- Chickenpox – Herpes zoster – Herpes simplex virus – Measles & Rubella – Mumps – Dengue fever – Japanese B encephalitis.

Parasitic Infestations:

Amaebiosis – Malaria – Filariasis – Trichinosis – Helminthiases – Schistosomiasis – Cysticerecosis& Hydatid Disease – Tropical ulcer – Kalaazar.

Systemic Fungal Infections:

Aspeigillosis – Candidiasis – Maduromycosis – Cryptococcosis – Histoplasmosis – Coccidilomycosis.

2.Alimentary tract and Liver & Pancreas

Functional anatomy, Physiology and Investigations of Alinentary system – Gastro Intestinal bleeding – Dyspepsia – Dysphagia – Vomiting – Diarrhoea – Abdominal pain – Constipation – Diseases of the oesophagus – Diseases of the stomach & Duodenum – Diseases of the small intestine (Including Malabsorption syndrome) – Inflammatory bowel diseases – Irritable bowel syndrome – Ascites – Diseases of the pancreas

3.Liver

Functional anatomy, physiology and Investigations of liver – Jaundice, Acute viral Hepatitis – Chronic vita Hepatitis – Autoimmune Hepatitis – Cirrhosis and chronic liver failure – Portal Hypertension – Hepatic (Porto systemic) encephalopathy – Hepato renal syndrome – Tymours of the Liver – Gall bladder and other biliary Disease

4. Neurological disease

Functional anatomy, Physiology and Investigations in Neurology – Head ache and Facial pain (Including Migraine) – Trigeminal Neuralgia – Epilepsies – Sleep Disorders – Coma and Brain Death – Alzheimer's disease and Dementia – Cerebrovascular Diseases Including Ischemic stroke – Haemarrhagic stroke and TIA – subarachroidHaemorrhage – Multiple sclerosis – Parkinsosn's disease – Motor Neuron Disease – Peripheral Neuropathies including GuillainBarri syndrome – Acute Meningitis (Viral, Pyogenic and Tuberculosis) – Acute viral encephalitis – Myasthnia gravis and Myopathies – Transverse myelitis – Compressive Myelopathies – Brain Tumours.

5. Skin and Venereal diseases

Pruritus – Urticaria – Acne vulgaris – Eczema – Stevens – Johnson syndrome – Psoriasis – Leprosy – Fungal infection of the skin (Ring worm) – Photosensitivity – Alopecia – Vitiligo – Dermatoses – Blisters & Bullous eruption – Gonococcal infection – Syphilis – Chlamydial infection.

6. Medical psychiatry

Classification of psychiatric Disorders – Anxiety Disorders – Depression (Bipolar Disorder) – Obsessive compulsive Disorder – Schizophrenia – Psychosomatic Disorder – Hysteria – Alcoholism and withdrawal syndrome – Drug misuse.

7. Geriatric Medicine

Demography – Normal ageing – The failty syndrome – Falls – Urinary Incontinence – Rehabilitation

8. Poisoning

General approach to the poisoned patient – Chemicals & Pesticides poisoning – Envenomation (Including scorpion sting, Snake bite) poisoning by specific pharmaceutical agents – Hanging & Drowning.

Scheme of Examinations (Final MBBS Part II Medicine)

a. Written paper (Theory)

There shall two papers (Paper I and Paper II) each of 3 hours duration. Each paper consist of one structured / Problem oriented essay question and Two short notes. Each paper carries 60 Marks (30 marks for each section). In addition, Internal Assessment carries 30 marks in Theory.

Paper I	60 Marks
Paper II	60 Marks
*Internal Assessment	30 Marks
	150 Marks

*Distribution of Internal Assessment: Theory test marks – 25 Marks + Theory Attendance – 5 marks = Total 30 Marks

B. Clinical & Oral

There shall be one long case, either of CNS, CVS, RS / Abdomen and Two short cases. The spotter cases are drawn from Skin, VD & Other systems.
The distribution of Marks in clinical & oral as follows.

1. Long case (one)	50 marks
2. Short case (Two) including Two spotters (25 marks each)	50 marks
Total	100 marks
3. Oral	10 marks
4. Short exercises: (X-rays, Slide, Instrument, Procedure/ Chart, Pathological specimen) (2 marks each)	10 marks
	20 marks
Grand Total	120 marks
5. Internal Assessment	30 marks
Grand Total	150 marks

* Distribution of Internal Assessment: Model clinics – 20 Marks + Clinical Attendance – 5 marks + Record book – 5 marks = Total 30 Marks

PAEDIATRICS
(PAEDIATRICS INCLUDING NEONATOLOGY)

The course includes systematic instructions in growth and development, nutritional needs of a child, immunization schedules and management of common diseases of infancy and childhood, scope of Social Paediatrics and counseling.

(i) GOAL:

The broad goal of the teaching of undergraduate students in paediatrics is to acquire adequate knowledge and appropriate skills for optimally dealing with major health problems of children to ensure their optimal growth and development.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe the normal growth and development during foetal life, neonatal period, childhood and adolescence and outline deviations thereof.

b. describe the common Paediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation;

c. state age related requirements of calories, nutrients, fluids, drugs etc. in health and disease;

d. describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse;

e. outline national programmes relating to child health including immunization programmes;

(B) Skills:

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

a. take a detailed Paediatric history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigation results and plan and institute therapy;

b. take anthropometric measurements, resuscitate newborn infants at birth, prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national programmes, perform venesection, start an intravenous saline and provide nasogastric feeding;

c. conduct diagnostic procedures such as lumbar puncture, liver and kidney biopsy, bone marrow aspiration, pleural tap and ascitic tap;

d. distinguish between normal newborn babies and those requiring special care and institute early care to all new born babies including care of pre-term and low birth weight babies, provide correct guidance and counseling in breast feeding;

e. provide ambulatory care to all sick children, identify indications for specialized/inpatient care and ensure timely referral of those who require hospitalization;

(C) Integration

The training in paediatrics should prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and at hospital as part of a team in an integrated form with other disciplines, e.g. Anatomy, Physiology, Forensic Medicine, Community Medicine and Physical Medicine and Rehabilitation.

M.B.B.S SYLLABUS

I **VITAL STATISTICS**:

Must know

- Definition and overview of Pediatrics with special reference to age-related disorders, Population structure, pattern of morbidity and mortality in children.
- Material, perinatal, neonatal, infant and preschool mortality rates, Definition, causes, present status and measures for attainment of goals.
- Current National programmes such as ICDS, RCH Vitamin A prophylaxis, UIP, Pulse Polio, ARI, Diarrhea control programme etc.

Desirable to know

- Other National Programme.

II **GROWTH AND DEVELOPMENT**

Must know

- Normal growth from conception to maturity.
- Anthropometery – measurement and interpretation of weight, length/height, heat circumference, mid-arm circumference. Use of weighing machines, infantometer.
- Interpretation of Growth Charts: Road to Health card and percentile growth curves.
- Abnormal growth patterns- failure to thrive, short stature.
- Growth pattern of different organ systems such as lymphoid, brain and sex organs.
- Normal pattern of teeth eruption.
- Principles of normal development.
- Important milestones in infancy and early childhood in the areas of Gross Motor. Fine motor, language and Personal – Social development. 3 – 4 milestones in each of the developmental fields, age of normal appearance and the upper age of normal.
- Preventable causes and assessment of developmental retardation.
- Psychological and behavioral problems.

Desirable to know

- Measurement and interpretation of sitting height, US:LS ratio and arm span.
- Age – independent anthropometric measurement – principles and application.
- Sexual Maturity rating.

III **NUTRITION**

Must know

- Normal requirements of protein, carbohydrates, fats, minerals and vitamins for newborn, children and pregnant and lactating mother. Common food sources.
- Breast feeding, - physiology of lactation, composition of breast milk, colostrums. Initiation and technique of feeding. Exclusive breast feeding-Definition and benefits. Characteristic

and advantages of breast milk. Hazards and demerits of prelacteal feed, top milk and bottle feeding. Feeding of LBW babies.

- Infant feeding / weaning foods, method of weaning.
- Assessment of nutritional status of a child based on history and physical examination.
- Protein energy malnutrition – Definition, classification according to IAP/Wellcome Trust, acute versus chronic malnutrition. Clinical features of marasmus & kwashiorkor. Causes and management of PEM including that of complications. Planning a diet for PEM.
- Vitamins- Recognition of vitamin deficiencies (A,D,K,C B-Complex). Etiopathogenesis, clinical features, biochemical and radiological findings, differential diagnosis and management of nutritional rickets & scurvy. Hypervitaminosis A and D.

Desirable to know

- Characteristics of transitional and mature milk (foremilk and hind milk). Prevention and management of loctational failure and feeding problems.
- Definition, causes and management of obesity.

IV IMMUNIZATION

Must know

- National Immunization Programme.
- Principles of Immunization. Vaccine preservation and cold-chain.
- Types, Contents, efficacy storage, dose, site, route, contra-indications and adverse reactions of vaccines – BCG, DPT, OPV, Measles, MMR and Typhoid: Rationale and methodology of Pulse Polio Immunization.
- Investigation and reporting of vaccine preventable diseases. AFP (Acute Flaccid Paralysis) surveillance.

Desirable to know

- Special vaccines like Hepatitis B, H, influenza b, Pneumococcal, Hepatitis A, Chickenpox, Meningococcal, Rabies.
-

V INFECTIOUS DISEASES

Must know

- Epidemiology, basic pathology, natural history, symptoms, signs, complications, investigations, different diagnosis, management and prevention of common bacterial, viral and parasitic infections in the region, with special reference to vaccine –preventable disease; Tuberculosis, Poliomyelitis, Diphtheria, Whooping cough, Tetanus including neonatal tetanus, Measles, Mumps, Rubella, Typhoid, Viral Hepatitis, Cholera, Chickenpox, Giardiasis, Amoebiasis, Intestinal Helminthiasis, Malaria Dengue fever, AIDS.

Desirable to know

- Kala-azar, Leprosy, Chlamydia infection.

VI HEMATOLOGY

Must know

- Causes of anemia in childhood. Classification based on etiology and morphology.
- Epidemiology, recognition, diagnosis, management and prevention of nutritional anemia-iron deficiency megaloblastic.
- Clinical approach to a child with anemia with lymphadenopathy and / or hepatosplenomegaly.
- Epidemiolgoy, clinical features, investigations and management of thalassemia.
- Epidemiology, clinical features, investigations and management of thalassemia.
- Approach to a bleeding child.
- Diagnosis of acute lumphoblastic leukemia and principles of treatment.
- Clinical features and management of hemophilia, ITP.

- Diagnosis and principles of management of lymphomas.

Desirable to know

- Types, clinical features and management of acute hemolytic anemia.
- Non-thrombocytopenic pupura (Henoch-Schonlein purpura).

VI RESPIRATORY SYSTEM

Must Know

- Clinical approach to a child with cyanosis, respiratory distress, wheezing Significance of recession, retraction.
- Etiopathogenesis, clinical features, complications, investigations, differential diagnosis and management of acute upper respiratory infections, pneumonia with emphasis on bronchopneumonia, bronchioligits, bronchitis. Acute and chronic otitis media.
- Etiopathogensis, clinical features, diagnosis, classification and management of bronchial asthma. Treatment of acute severe asthma.
- Pulmonary tuberculous-tuberculous infection versus tuberculous disease, difference between primary and post-primary tuberculosis. Etiopathogenesis, diagnostic criteria in children versus adults. Diagnostic aids-technique and interpretation of mantoux test and BCG test. Radiological patterns, Chemoprophylaxis and treatment.
- Diagnosis and management of foreign body aspiration. Differential diagnosis of stridor.
- Pathogenesis, clinical features and management of pneumothorax, pleural effusion and empyema.

Desirable to know

- Multidrug resistant tuberculosis, Bronchectasis, pulmonary cysts.

VIII GASTRO INFESTINAL TRACT

- Clinical approach to a child with jaundice, vomiting, abdominal pain, bleeding, hepatosplenomegaly.
- Acute diarrhoeal disease-Etiopathogenesis, clinical differentiation of watery and invasive diarrhoea, complications of diarrheal illness. Assessment of dehydration, treatment at home and in hospital. Fluid and electrolyte management. Oral rehydration, composition of ORS.
- Clinical, features and management of acute viral hepatitis, causes and diagnosis of chronic Liver Disease.
- Common causes of constipation.
- Abdominal tuberculosis.

Desirable to Know

- Causes, clinical features and management of Portal hypertension, Reye's syndrome, Coeliac disease.
- Drug induced hepatitis.

IX CENTRAL NERVOUS SYSTEM

Must Know

- Clinical approach to a child with coma, convulsions, mental retardation.
- Clinical diagnosis, investigations and treatment of acute pyogenic meningitis, encephalitis & Tubercular Meningitis.
- Seizure Disorder – Causes and types of convulsions at different ages. Diagnosis, catergorization& management of Epilepsy (Broad outline). Febrile convulsions – definition, types, management.
- Causes, diagnosis and management of cerebral palsy.
- Acute flaccid paralysis – Differentiation between Polio and Gullain – Barre syndrome.
- Microcephaly, Hydrocephalus, chorea.

Desirable to know

- Infantile tremor syndrome, infantile hemiplegia

X **CARDIOVASCULAR SYSTEM**

Must Know

- Clinical features, diagnosis, investigation, treatment and prevention of acute rheumatic fever. Common forms of rheumatic heat disease in childhood. Differentitation between rheumatic and rheumatoid arthritis.
- Recognition of congenital acyanotic and cyanotic heart disease. Hemodynamics, clinical features and management of VSD, PDA, ASD and Fallot's tetralogy (Cyanotic spells).
- Recognition of congestive cardiac failure in children.
- Hypertension in children – recognition and referral.

Desirable to know

- Diagnosis and management of bacterial endocarditis, pericardial effusion, myocarditis.

XI **GENITOURINARY SYSTEM**

Must Know

- Basic etiopathogenesis, clinical features, diagnosis, complications and management of acute post-streptococcal glomerulonephritis and nephritic syndrome.
- Etiology, clinical features, diagnosis and management of urinary tract infection – acute and recurrent.
- Etiology, diagnosis and principles of management of acute renal failure.
- Causes and diagnosis of obstructive uropathy in children.
- Diagnosis and principles of management of chronic renal failure.
- Causes and diagnosis of hematuria.

Desirable to know

- Renal and bladder stones
- Hemolytic – uremic syndrome

XII **ENDOCRINOLOGY**

Must know

- Etiology clinical features & diagnosis of diabetes and hypothyroidism, hyperthyrodisim and goiter in children.

Desirable to know

- Delayed and precocious puberty.

XIII **NEONATOLOGY**

Must know

- Definition – live birth, neonatal period, classification according to weight and gestation, mortality rates.
- Delivery room management including neonatal resuscitation and temperature control.
- Etiology, clinical features, principles of management and prevention and birth asphyxia.
- Birth injuries – causes and their reconition.
- Care of the normal newborn in the first week of life. Normal variations and clinical signs in the neonate.
- Breast feeding – physiology and its clinical management.
- Identification of congenital anomalies at birth with special reference to anorectal anomalies, tracheo-esophageal fistula, diaphragmatic hernia, neural tube defects.
- Neonatal infection – causes, diagnosis and principles of management. Superficial infections, sepsis.
- Low birth weight babies-causes of prematurity and small-for-date baby, clinical features and differentiation. Principles of feeding and temperature regulation. Problems of low birth weight babies.

- Identification of sick newborn (i.e. detection of abnormal signs – cyanosis, jaundice, respiratory distress, bleeding, seizures, refusal to feed, abdominal distension, failure to pass meconium and urine).

Desirable to know

- Recognition and management of specific neonatal problems- hypoglycemia, hypocalcemia, anemia, seizures, necrotizing enterocolitis, haemorrhage.
- Common intra-uterine infections.
- Trnasportation of a sick neonate.

XIV PEDIATRIC EMERGENCIES

Must know

- Status epilepticus.
- Status asthmaticus / Acute Severe Asthma.
- Shock and anaphylaxis.
- Burns.
- Hypertensive emergencies.
- Gastrointestinal bleed.
- Comatose child.
- Congestive cardiac failure.
- Acute renal failure.

XV FLUID – ELEGTROLYTE

Must know

- Principles of fluid and electrolyte therapy in children.
- Pathophysiology of acid-base imbalance and principle of management.

XVI GENETICS

Must know

- Principles of inheritance and diagnosis of genetic disorders
- Down's Syndrome.

XVII BEHAVIOURAL PROBLEMS

Must know

- Breath holding spells, nocturnal enuresis, temper tantrums, pica.

XVII PEDIATRIC SURGICAL PROBLEMS

Must know

- Diagnosis and timing of surgery of cleft lip / palate, hypospadias, undescended testis, tracheo-esophageal fistula, hydrocephalus, CTEV, Umbilical and inguinal hernia, anorectal malformations, hypertrophic pyloric stenosis.

XIX THERAPEUTICS

Must know

- Pediatric doses, drug combinations, drug interactions, age specific choice of antibiotics etc.

Annexure – I

1. Convulsion including status epilepticus
2. Coma
3. PUO
4. Jaundice
5. Portal hypertension
6. Respiratory failure

7. Shock and anaphylaxis
8. Rheumatic Heart Disease
9. Hypertension
10. Diabetes mellitus
11. Hypothyroidism
12. Anemia
13. Bleeding
14. Renal failure
15. Tuberculosis
16. Malaria
17. HIV infection
18. Poliomyelitis and AFP surveillance
19. Perinatal Asphyxia (with obstetrics)
20. Intrauterine growth retardation (with obstetrics

Annexure – II

1. Protein energy malnutrition
2. Rickets
3. Acute Diarrhea including fluid therapy
4. Persistent Diarrhea
5. Hepatosplenomegaly and Splenohepatomegaly
6. Hemolytic anemia and other anemias
7. Bleeding child
8. Leukemia
9. Generalised lymphadenopathy
10. Congenital heart disease (left to right shunt and right to left shunt)
11. Rheumatic Heart Disease
12. Nephrotic syndrome (generzlised anasarca)
13. Acute glomerulonephritis
14. Pleural effusion / consolidation
15. Bronchial asthma (respiratory distress)
16. Upper respiratory infections
17. Bronchopneumonia
18. Rash
19. Meningitis
20. Hemi paresis
21. Monoparesis including acute flaccid paralysis
22. Mental retardation (preventable and cerebral palsy)
23. Epilepsy and febrile convulsions
24. Hydrocephalus
25. Normal Newborn
26. Low birth weight babies
27. Preterm babies
28. Neonatal Jaundice
29. Neonatal Septicemia
30. Newborn resuscitation
31. Respiratory distress in newborn

Annexure – III

1. Normal Newborn
2. Normal development in a child
3. Low Birth Weight Babies

4. Temperature regulation in newborn
5. Neonatal Infections
6. Neonatal Respiratory Distress
7. Jaundice in Newborn
8. Malaria and Typhoid Fever
9. Immunization
10. Adolescent growth and disorders of puberty
11. Common exanthematous illness
12. Infant Feeding
13. Xerophtalmia& Malnutrition
14. Protein energy Malnutrition
15. Fluid and electrolyte imbalance
16. Acute diarrhea
17. Persistent diarrhea
18. Chronic liver disease
19. Seizure disorders
20. Acute flaccid paralysis
21. Cerebral palsy & mental retardation
22. Leukemias
23. Hemolytic anemias & Thalassemia
24. Bleeding and coagulation disorders
25. Iron deficiency anemia
26. Ac.Glomerulonephritis& Hematuria
27. Nephrotic Syndrome
28. Rheumatic fever and heart disease
29. Acute respiratory infections
30. Congenital heart disease
31. Congestive heart failure
32. Meningitis
33. Bronchial asthma
34. Behavioral Disorders
35. Childhood Tuberculosis

PSYCHIATRY

(i) GOAL:

The aim of teaching the undergraduate student in psychiatry is to impart such knowledge and skills that may enable him to diagnose and treat common Psychiatric disorders, handle Psychiatric emergencies and to refer complications/unusual manifestations of common disorders and rare Psychiatric disorders to the specialist.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. Comprehend nature and development of different aspects of normal human behavior like learning, memory, motivation, personality and intelligence;

b. Recognize difference between normal and abnormal behavior;

c. Classify psychiatric disorders;

d. Recognize clinical manifestations of the following common syndromes and plan their appropriate management of organic psychosis, functional psychosis, schizophrenia, affective disorders, neurotic disorders, personality disorders, psycho-physiological disorders, drug and alcohol dependence, psychiatric disorders of childhood and adolescence;

e. Describe rational use of different modes of therapy in psychiatric disorders.

(B) Skills:

The student shall be able to:

a. interview the patient and understand different methods of communications in patient-doctor relationship;

b. elicit detailed psychiatric case history and conduct clinical examination for assessment of mental status;

c. define, elicit and interpret psycho-pathological symptoms and signs;

d. identify and manage psychological reactions and psychiatric disorders in medical and surgical patients in clinical practice and in community setting.

(C) Integration

Training in psychiatry shall prepare the students to deliver preventive, promotive, curative and rehabilitative services for the care of patients both in the family and community and to refer advance cases to a specialized Psychiatry/Mental Hospital. Training should be integrated with the departments of Medicine. Neuro-Anatomy, Behavioral Sciences and Forensic medicine.

Rajah Muthiah Medical College & Hospital
Department of Psychiatry

UG (MBBS)– SYLLABUS

1. History taking in Psychiatry and Mental Status Examination.
2. Delirium
3. Dementia
4. Amnesic Disorders
5. Substance Abuse disorders including Alcohol, Cannabis, Tobacco, Opioid, CNS Stimulants, Sedatives and Hypnotics, Hallucinogens and Cocaine
6. Schizophrenia and related disorders
7. Bipolar Affective disorders including Mania, depression and mixed states.
8. Depression
9. Anxiety Disorders including Generalized anxiety disorders, Panic Anxiety disorders and Phobic Anxiety disorders
10. OCD
11. PTSD
12. Somatoform Disorders including Hypochondriasis, Somatisation disorder
13. Psychosomatic Disorders
14. Suicide
15. Psychosexual disorders including Desire Disorders, Erectile disorders, Orgasmic disorders, Paraphilia and Homosexuality
16. Mental Retardation
17. Pervasive Developmental disorders including Autism
18. Disruptive Behaviour Disorders including ADHD, Conduct Disorders, Oppositional Defiant disorder
19. Childhood Depression and other psychiatric Disorders during childhood
20. Community Psychiatry
21. Forensic psychiatry

Psychiatric Clinic: Clinical Demonstration – 3 hours / day for 15 Days for V semester Students.
Psychiatry Theory: Theory Class – 1 hour / Week for 24 weeks for VII semester Students
CRRI Postings: 15 days internship in MHC OP and Psychiatry Wards.

DERMATOLOGY AND SEXUALLY TRANSMITTED DISEASES

(i) GOAL:

The aim of teaching the undergraduate student in Dermatology, Sexually Transmitted Diseases (STD) and Leprology is to impart such knowledge and skills that may enable him to diagnose and treat common ailments and to refer rare diseases or complications/unusual manifestations of common diseases, to the specialist.

(ii) OBJECTIVES:

(A) Knowledge:

At the end of the course of Dermatology, Sexually Transmitted Diseases and Leprology, the student shall be able to:

a. demonstrate sound knowledge of common diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis;

b. demonstrate comprehensive knowledge of various modes of topical therapy;

c. describe the mode of action of commonly used drugs, their doses, side-effects/toxicity, indications and contra-indications and interactions;

d. describe commonly used modes of management including the medical and surgical procedures available for the treatment of various diseases and to offer a comprehensive plan of management for a given disorder.

(B) Skills:

The student shall be able to:

a. interview the patient, elicit relevant and correct information and describe the history in a chronological order;

b. conduct clinical examination, elicit and interpret physical findings and diagnose common disorders and emergencies;

c. perform simple, routine investigative and laboratory procedures required for making the bed-side diagnosis, especially the examination of scrapings for fungus, preparation of slit smears and staining for AFB for leprosy patients and for STD cases;

d. take a skin biopsy for diagnostic purposes;

e. manage common diseases recognizing the need for referral for specialized care, in case of inappropriateness of therapeutic response.

UG CURRICULUM

Department of dermatology venereology and leprosy takes regular clinical and theory classes as per the schedule. The posting timings of undergraduates are listed down in detail. All the DVL staff will take regular classes to the undergraduates. In addition all our post graduates will be allotted the DVL related topics and allowed to take UG classes 30 minutes during their postings under the supervision

of Teaching staff. The classes will be taken in DVL ward seminar room, they will be given ward cases for discussion and classes taken by the staff. They will be allowed to observe the dermatological procedures during their postings. The 15 days of their postings will be regularly monitored. The poor learners will be given separate counseling and additional classes will be taken based on mentor and mentee system. VIII thsem students – mentor will be the head of the department, and for VI thsem students associate professor will be the mentor and for IV th semester one assistant professor will be the mentor.

Undergraduate Clinical postings (overall)

Topics covered during the postings for all semesters

1. Introduction to the field of dermatology
2. Common dermatological cases attending DVL OPD
3. History taking in dermatology
4. Leprosy case discussion
5. Psoriasis
6. Lichen planus
7. Dermatophytosis
8. Pityriasisversicolar
9. Scabies
10. Pediculosis
11. Alopecia
12. Acne vulgaris
13. Genital discharge
14. Genital ulcer disease
15. Genital wart

Semester wise clinical postings:

IV thSemester :
Posting period: January to June – 6 months posting - 15 days for each batch
Posting timing: 9 AM to 12 Noon

VI thSemester :

March to July – 5 months
VIII thsemester : March to July – 5 months - 15 days for each batch

Under graduate Theory classes

IV thSemester : no theory classes
VI thSemester :
Our teaching staff will cover all weekly all Tuesdays theory classes one hour between 11 AM to 12 Noon x 20 classes during March to July every year
VIII th semester : weekly all Fridays theory classes one hour between 12 Noon to 1 PM x 20 classes during March to July every year

S.NO	TOPICS VI TH SEMESTER (TUESDAYS) Theory
1	Basics in Dermatology venereology Leprosy
2	History taking in venereology and pre assessment test
3	Genital discharge in females
4	Genital herpes
5	Gonorrhoea
6	Chancroid
7	Syphilis
8	Genital wart
9	Non venereal dermatoses
10	Syndromic approach - genital ulcer disease
11	Syndromic approach- bubo, urethral and genital discharge
12	Leprosy - history taking and examination
13	Leprosy - clinical features
14	Reactions in leprosy
15	Leprosy management
16	Deformities in leprosy
17	Pediatric dermatology
18	Emergencies in Dermatology
19	HIV – clinical features and Lab diagnosis
20	Anti retro viral Drugs - HARRT

S.NO	TOPICS VIII TH SEMESTER (FRIDAY) Theory
1	Pretest Bacterial infections- superficial / deep
2	Cutaneous tuberculosis
3	Superficial fungal infections
4	Parasitic infestations- scabies, Pediculosis
5	Viral infections- varicella, wart
6	Connective tissue disease SLE
7	Scleroderma
8	Neuro cutaneous syndromes – Tuberous sclerosis
9	Neurofibromatosis
10	Psoriasis
11	Acne
12	Vitiligo vulgaris
13	Adverse drug reactions
14	Pemphigus vulgaris
15	Bullous pemphigoid
16	Urticaria
17	Fever with rash
18	Cutaneous manifestations in diabetes
19	Geriatric dermatoses
20	Overall revision of theory classes Post test and feedback

TUBERCULOSIS AND RESPIRATORY DISEASES

(i) GOAL:

The aim of teaching the undergraduate student in Tuberculosis and Chest Diseases is to impart such knowledge and skills that may enable him/her to diagnose and manage common ailments affecting the chest with the special emphasis on management and prevention of Tuberculosis and especially National Tuberculosis control programme.

(ii) OBJECTIVES:

(A) Knowledge:

At the end of the course of Tuberculosis and Chest-diseases, the student shall be able to:

a. demonstrate sound knowledge of common chest diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis;

b. demonstrate comprehensive knowledge of various modes of therapy used in treatment of respiratory diseases;

c. describe the mode of action of commonly used drugs, their doses, side-effects/toxicity, indications and contra-indications and interactions;

d. describe commonly used modes of management including medical and surgical procedures available for treatment of various diseases and to offer a comprehensive plan of management inclusive of National Tuberculosis Control Programme.

(B) Skills:

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

a. interview the patient, elicit relevant and correct information and describe the history in chronological order;

b. conduct clinical examination, elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies;

c. perform simple, routine investigative and office procedures required for making the bed side diagnosis, especially sputum collection and examination for etiologic organisms especially Acid Fast Bacilli (AFB), interpretation of the chest X-rays and respiratory function tests;

d. interpret and manage various blood gases and pH abnormalities in various respiratory diseases;

e. manage common diseases recognizing need for referral for specialized care, in case of inappropriateness of therapeutic response;

f. assist in the performance of common procedures, like Laryngoscopic examination, pleural aspiration, respiratory physiotherapy, laryngeal intubation and pneumo-thoracic drainage/aspiration.

(C) Integration

The broad goal of effective teaching can be obtained through integration with departments of Medicine, Surgery, Microbiology, Pathology, Pharmacology and Preventive and Social Medicine.

SURGERY AND ITS ALLIED SPECIALITIES
SURGERY
(Including PAEDIATRIC SURGERY)

(i) GOAL:

The broad goal of the teaching of undergraduate students in Surgery is to produce graduates capable of delivering efficient first contact surgical care.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. describe etiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;

b. define indications and methods for fluid and electrolyte replacement therapy including blood transfusion;

c. define asepsis, disinfection and sterilization and recommend judicious use of antibiotics;

d. describe common malignancies in the country and their management including prevention;

e. enumerate different types of anesthetic agents, their indications, mode of administration, contraindications and side effects.

(B) Skills:

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

a. diagnose common surgical conditions both acute and chronic, in adults and children;

b. plan various laboratory tests for surgical conditions and interpret the results;

c. identify and manage patients of hemorrhagic, septicaemic and other types of shock;

d. be able to maintain patent air-way and resuscitate;

- a critically injured patient;
- patient with cardio-respiratory failure;
- a drowning case;

e. monitor patients of head, chest, spinal and abdominal injuries, both in adults and children;

f. provide primary care for a patient of burns;

g. acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring;

h. treat open wounds including preventive measures against tetanus and gas gangrene;

i. diagnose neonatal and Paediatric surgical emergencies and provide sound primary care before referring the patient to secondary/tertiary centers;

j. identify congenital anomalies and refer them for appropriate management.

In addition to the skills referred above in items (i) to (j), he shall have observed / assisted / performed the following:

- Incision and drainage of abscess;
- Debridement and suturing open wound;
- Venesection;
- Excision of simple cyst and tumours;
- Biopsy of surface malignancy;
- Catheterisation and nasogastric intubation;
- Circumcision;
- Meatotomy;
- Vasectomy;
- Peritoneal and pleural aspirations;
- Diagnostic proctoscopy;
- Hydrocele operation;
- Endotracheal intubation;
- Tracheostomy and cricothyroidotomy;
- Chest tube insertion.

(C) Integration

The undergraduate teaching in surgery shall be integrated at various stages with different pre and para clinical and other clinical departments.

ORTHOPAEDICS

(A) Knowledge:

The students shall be able to:

a. explain the principles of recognition of bone injuries and dislocation;

b. apply suitable methods to detect and manage common infections of bones and joints;

c. identify congenital, skeletal anomalies and their referral for appropriate correction or rehabilitation;

d. recognize metabolic diseases as seen in this country;

e. explain aetiogenesis, manifestations, diagnosis of neoplasm affecting bones;

(B) Skills:

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

a. detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, Colles's forearm, phalanges etc.;

b. use techniques of splinting, plaster, immobilization etc;

c. manage common bone infections, learn indications for sequestration, amputations and corrective measures for bone deformities;

d. advise aspects of rehabilitation for polio, Cerebral Palsy and Amputation.

(C) Application

Be able to perform certain orthopaedic skills, provide sound advice of skeletal and related conditions at primary or secondary health care level.

(D) Integration

Integration with Anatomy, Surgery, Pathology, Radiology and Forensic Medicine be done.

Department of Orthopaedics, RMMCH.
Syllabus for MBBS students – final year

Topic
General Orthopaedics – Introduction Gait, Splinting, Deformities Causes, Management, Clinical Examination of Orthopaedic Patients.
INTRODUCTORY CLASS Clinical Examination, Investigative Procedures, Arthroscopy, General Principles & Management, Conservative methods of correction of deformities.

INTRODUCTION & GAIT Orthopaedics Definition, Splinting in Orthopaedics, Orthopaedic Materials, Fractures, Principles & Management of Fractures.
COMPLICATION OF FRACTURES Volkman's Ischemic contracture, Myositis ossificans, Fat Embolism, Delayed union & Non-union, Sudecks Osteodystrophy, Pathological Fracture.
Congenital Deformities: Lower limb CTEV, Etiology, CDH, Spina Bifida, Meningomyelocele.
Congenital Deformities: Upper Limb: Springel's Shoulder, Radio ulna Synostosis, Madelung's deformity, Congenital Torticollis, Pseudoarthrosis Tibia.
Infections: Osteomyelitis, Acute Pyogenic Osteomyelitis, Chronic Osteomyelitis, Brodie's abscess, Garret's Osteomyelitis, Syphilitic infection, Parasitic infection of bones.
Arthritis: Acute pyogenic arthritis, Septic arthritis of infancy, Rheumatoid arthritis Chronic arthritis, Madura mycosis.
Developmental Disorders Cartilagenous Dysplasia, Multiple exostosis, Enchondromatosis, Achondroplasia, Bony dysplasia.
Developmental Disorders Osteogenesis imperfecta, Osteopetrosis, Fibrous Dysplasia, Neurofibromatosis, Dwarfism-proportionate dwarf, Disproportionate dwarf.
Bone & Joint Tuberculosis: a). Tuberculosis of Spine, b). tuberculosis of Hip joint, Knee jt. Ankle Jt. & Other joint. Tuberculosis Osteomyelitis, dactylitis, Poncet's – Tuberculosis rheumatics.
GENERALISED DISEASES OF BONES: Metabolic diseases – Rickets, Osteoporosis, Scurvy, Gout, Parathyroid Osteodystrophy, Diseases of Hemopoietic system, Sickle cell anemia,
GENERALISED DISEASES OF BONES Miscellaneous – Paget's diseases, Flurosis, Hypervitaminosis – A, Hyper Vitaminosis-D, Infantile cortical Hyperostosis.
DISEASES OF JOINTS: a). Rheumatoid arthritis, Ankylosing spondylitis, Reiters diseases, Psoriatic arthritis.
DISEASES OF JOINTS: b). Osteoarthritis knee, Osteoarthritis of hip joint, Neuropathic joint, Gout, Pseudogout, Alkaptonuric arthritis, Haemophilic arthritis, Synovial Chondromatosis
AVASCULAR NECROSIS OF BONE Definition, General features, Classification, Treatment, Caisson;s diseases, Perthe's, Osteochondritis.
Tumours of Bone Classification, Surgical Stages
Tumour Like Lesions: Osteoid Osteoma, Benign Osteoblastoma, Osteochondroma, diaphysealaclasia, Enchondroma, Cystic tumour in bone, Unicameral cyst, Aneurysmal bone cyst.
Bone tumours Osteosarcoma, parosteal Osteosarcoma, Giant Cell tumour, Chondroblastoma, Chondromyxoid fibroma, Chondrosarcoma, fibro sarcoma, Ewing sarcoma, Plasmacytosis, Multiple myeloma, Bone metastasis, synovial sarcoma, chondroma.
Neurological & Muscular Disorders Cerebral palsy, Anterior poliomyelitis, stage Management, Surgery, Inequality of Limb length, Leprosy, Muscular dystrophy.

UPPER LIMB Torticollis Supraspinatus, Tendinitis, Periarthritis shoulder, Detailed fibrosis, Tennis elbow, Cubitus valgus, Cubitusvarus,
UPPER LIMB Ganglion, Trigger finger, Trigger thumb, Carpal tunnel syndrome, Duputyren's Contracture, Baker's cyst, Semimembranous bursitis.
Back Ache Intervertebral disc prolapse
Hip – Coxa Vara, Slipped Upper femoral epiphysis, Knee- Genu Valgum, Genu Varum, Quadriceps fibrosis, Recurrent dislocation of Patella, Loose bodies in knee joint, Foot plantar fascitis, Hallux valgus.
Physical Medicine & Rehabilitation - Electro diagnosis, Strength Duration curve, Electromyography, Nerve conduction Velocity, Physiotherapy, Exercise theraphy,
Physical Medicine & Rehabilitation Heat theraphy, short wave diathermy, Interferential therapy, Electrical stimulation, ultrasound, Prosthesis.
INJURIES OF SHOULDER Fracture Clavicle, Acromio Clavicular Joint injuries, Dislocation of Shoulder Joint, Recurrent dislocation.
INJURIES OF ARM Fracture Proximal end of humerus, Fracture neck of humerus, Fracture shaft of humerus.
INJURIES OF ELBOW Fracture head of radius, Fracture neck of radius, Fracture of Olecranon
DISLOCATION OF ELBOW Dislocation of elbow- mechanism, types, details of posterior dislocation, side swipe injury
INJURIES OF FOREARM Fracture both bones forearm, Monteggia Fracture dislocation, Galeazzi fracture dislocation.
INJURIES AROUND WRIST Colle's fracture, Smith fracture, Barton's fracture, Scaphoid fracture, Dislocation of hamate bone
HAND INJURY Closed injuries, Fracture Metacarpal, Fracture phalanges, Dislocation of Metacarpophalangeal Joint, Bennett's fracture.
INJURIES OF HIP Anatomy & blood supply of Neck of femur, Neck of femur (Intracapsular), Trochanteric Fracture (Extracapsular)
DISLOCATION OF HIP Mechanism, Types, Details of Posterior dislocation
INJURIES OF THIGH Fracture shaft of femur, Fracture Proximal 3rd,Middle 3rd,Distal 3rd, Fracture femur in Children.
INJURIES OF THE KNEE Fracture of femoral Condyles, Fracture of Tibial condyles, Fracture Patella, Dislocation of patella
INJURIES OF LEG, ANKLE& FOOT Fracture of tibia & fibula, Fracture dislocation of the ankle, Fracture of the talus, Fracture Calcaneum, Fracture of the Metatarsal
INJURIES OF THE SPINE Dorsolumbar spine, Classification Mechanism & Types, Fracture dislocation without Paraplegia, Fracture dislocation with paraplegia
MANAGEMENT OF PARAPLEGIA Bedsore, Bladder Care, Injuries of Cervical spine

RADIO-DIAGNOSIS AND RADIOTHERAPY

RADIODIAGNOSIS & IMAGING

(i) GOAL:

The broad goal of teaching the undergraduate medical students in the field of Radio-diagnosis should be aimed at making the students realize the basic need of various radio-diagnostic tools in medical practice. They shall be aware of the techniques required to be undertaken in different situations for the diagnosis of various ailments as well as during prognostic estimations.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. understand basics of X-ray production, its uses and hazards;

b. appreciate and diagnose change is bones – like fractures, infections, tumors and metabolic bone diseases;

c. identify and diagnose various radiological changes in disease conditions of chest and mediastinum, skeletal system, Gastro intestinal Tract, Hepatobiliary system and Genito Urinary (G.U) system;

d. learn about various imaging techniques, including isotopes Computerised Tomography (C.T), Ultrasound, Magnetic Resonance Imaging (M.R.I) and Digital Subtraction Angiography (D.S.A).

(B) Skills:

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

a. use basic protective techniques during various imaging procedures;

b. interpret common X-ray radio-diagnostic techniques in various community situations;

c. advise appropriate diagnostic procedures in specialized circumstances to appropriate specialists.

RADIOTHERAPY

(i) GOAL:

The broad goal of teaching the undergraduate medical students in the field of Radiotherapy is to make the students understand the magnitude of the ever-increasing cancer problem in the country. The students must be made aware about steps required for the prevention and possible cure of this dreaded condition.

(ii) OBJECTIVES:

(A) Knowledge:

The student shall be able to:

a. identify symptoms and signs of various cancers and their steps of investigations and management;

b. explain the effect of radiation therapy on human beings and the basic principles involved in it;

c. know about radio-active isotopes and their physical properties; be aware of the advances made in radiotherapy in cancer

d. management and knowledge of various radio therapeutic equipment while treating a patient.

(B) Skills:

At the completion of the training programme, the student shall be able to:

a. take a detailed clinical history of the case suspected of having a malignant disease;

b. assist various specialists in administration of anticancer drugs and in application and use of various radiotherapeutic equipment, while treating a patient.

OTO-RHINO-LARYNGOLOGY

M.B.B.S – Curriculum

1. **Goal:-**

The goal of the teaching of undergraduate students in Otorhinolaryngology should emphasise on acquisition and development of competencies which are required for practice in a diverse environment ranging from primary health care center to a tertiary care setting.

2. Objectives:-

a. Knowledge

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

i) Describe the basic Pathophysiology of common Ear, Nose, Throat diseases and emergencies
ii) Adopt the rational use of commonly used drugs, keeping in mind the adverse reactions
iii) Suggest common investigation procedures to the related diseases and their interpretation

b. Skills

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

i. Examine and diagnose common Ear, Nose and Throat (ENT) problems including the pre-malignant and malignant disorders of the head and neck.
ii. Manage Ear, Nose and Throat (ENT) Problems at the first level of care and be able to refer whenever necessary

iii. Assist/ Carry out minor surgical procedures like ear syringing ear dressing, nasal packing etc.,
iv. Assist in certain procedures such a tracheostomy, endoscopies and removal of ear and nose foreign bodies

c. Integrations

The undergraduate training in Ear, Nose and Throat (ENT) will provide an integrated approach towards other disciplines especially like Neuro Sciences, Ophthalmology, and General Surgery.

3. Department Objectives:-

1. To enable the student to familiarize himself/herself with the common problems related to the subject of ENT.
2. To enable the student to be competent to evaluate the symptoms, analyze the findings, diagnose, suggest and implement the treatment modalities to treat common ENT conditions.
3. To make student competent to perform emergency life saving procedures commonly seen in ENT practice
4. To make the student aware of the program on prevention of deafness and have knowledge of methods for screening for early detection of hearing loss
5. To make learning of the subject of ENT through evoking a curiosity and generate a habit of self-learning which may be utilized to make the learning habit a dynamic one.

6. To enhance the attitude communicative skills, adapt to changing trends in education, learning methods and evolve new diagnostic and therapeutic techniques in the subject of ENT.
7. To make the student understand the rational use of pharmaco-therapeutic agents used in treating ENT diseases and have the knowledge of the common side effects and interactions of commonly used drugs.

4. Course Contents:-

1. Knowledge:-

	Must Know	Desirable to know
✓ History taking in relation to common complaints encountered in ENT	✓	
✓ Examination of Ear, Nose, Oral cavity, Oropharynx, Larynx, Neck	✓	
✓ Causes of pain in the Ear	✓	
✓ Wax	✓	
✓ Otomycosis	✓	
✓ Otitis Externa	✓	
✓ ASOM	✓	
✓ NSOM	✓	
✓ Causes of Ear discharge	✓	
✓ CSOM – Safe	✓	
✓ CSOM – Unsafe	✓	
✓ Complications of CSOM	✓	
✓ Causes of Hearing loss	✓	
✓ Diagnosis of Hearing loss	✓	
✓ Types of hearing loss	✓	
✓ Otosclerosis	✓	
✓ Sudden SNHL	✓	
✓ Noise Induced Hearing loss	✓	
✓ Causes of facial Nerve paralysis	✓	
✓ Bells Palsy	✓	
✓ Traumatic Lesions of the Facial Nerve		✓
✓ Causes of Vertigo	✓	
✓ Differences between central & peripheral vertigo		✓
✓ Menier's Disease	✓	
	Must Know	Desirable to know
➢ Tinnitus	✓	

➢ Causes of Nasal Obstruction	✓	
➢ DNS	✓	
➢ Nasal Polyps	✓	
➢ Adenoids	✓	
➢ Causes of Nasal Discharge	✓	
➢ Allergic Rhinitis	✓	
➢ Vasomotor Rhinitis	✓	
➢ Acute & Chronic Rhinitis	✓	
➢ Epistaxis: Causes & Management	✓	
➢ Angiofibroma	✓	
➢ Acute & Chronic Sinusitis	✓	
➢ Carcinoma of Nasopharynx		✓
➢ Diseases of the Salivary glands		✓
➢ Ludwigs angina	✓	
➢ Causes of Dysphagia	✓	
➢ Acute & Chronic Tonsillitis	✓	
➢ Acute & Chronic abscesses in relation to pharynx	✓	
➢ Causes of Hoarseness	✓	
➢ Acute & Chronic Laryngitis	✓	
➢ Benign lesions of the vocal cord	✓	
➢ Malignancy of the Larynx & Hypo pharynx	✓	
➢ Causes of Stridor	✓	
➢ Laryngeal Paralysis	✓	
➢ Foreign bodies in the air & food passages	✓	
➢ Emergency management of the airway	✓	
➢ HIV Manifestation IN ENT	✓	
	Must Know	Desirable to know
➢ Basic Principles of Surgeries of ENT	✓	
➢ Acoustic Neuroma	✓	
➢ Tumors of the middle ear & mastoid	✓	
➢ Electrodiagnostic tests for facial nerve		✓
➢ Tests for malingering		✓
➢ Trauma to the face & Neck		✓
➢ Neoplasms of the sinuses (other than maxilla)		✓
➢ Diagnosis of Voice disorders		✓
➢ Perforation of Oesophagus	✓	
➢ Motility disorders of Oesophagus	✓	

2. Skills:-

	Performed Independently	Under Guidance	Under Assistance	With Observer
➢ The Student should adept at the:				
➢ Skill of using a head mirror and know how to focus the light	✓			
➢ Skill of using the different instruments in the ENT OPD as diagnostic tools e.g. Tongue depressor, Nasal speculum, Ear probe, Laryngeal mirror, Posterior nasal mirror, Ear speculum, tuning fork etc.	✓			

➢ Skill of holding and using the Otoscope to be able to visualize the ear drum and its mobility. The student should be able to distinguish a healthy and unhealthy eardrum, a safe and unsafe ear disease.	✓			
	Performed Independently	Under Guidance	Under Assistance	With Observer
➢ Skill of doing the various tuning fork tests vizrinne's, Weber's and absolute bone conduction test	✓			
➢ Skill to identify and palpate the anatomical landmarks in ENT	✓			
➢ Skill to examine the Ear, Nose, Throat & Neck	✓			
➢ Skill to clean the Ear	✓			
➢ Skill to doing Ear syringing		✓		
➢ Skill of performing routine OPD procedures used for diagnostic and therapeutic methods	✓			
➢ Skill to distinguish the type of hearing loss by learning the analysis of the tuning fork test & Audiograms		✓		
➢ Skill of performance maneuvers like Valsalva etc.	✓			
➢ Skill of testing the functions of Various cranial nerves	✓			
➢ Skill to check for spontaneous nystagmus		✓		
➢ Skill for doing the tests for nasal patency	✓			
➢ Skill to be able to perform maneuvers to maintain and establish the airway in case of emergency			✓	✓
➢ Skill to suction a Tracheotomy			✓	
➢ Remove Wax		✓		
➢ Perform indirect laryngoscopy and posterior rhinoscopy			✓	✓
	Performed Independently	Under Guidance	Under Assistance	With Observer
➢ Remove foreign bodies from the ear & nose			✓	✓
➢ Perform anterior nasal packing			✓	✓
➢ Tracheostomy				✓
➢ Septoplasty				✓
➢ Tonsillectomy & Adenoidectomy			✓	
➢ Myringoplasty			✓	✓
➢ Mastoidectomy			✓	✓
➢ Oesophagoscope				✓
➢ Pure Tone Audiometry			✓	

5. Details of Training/ Pattern of Coverage of Above Curriculum:-

- The above course training of ENT will be covered in the form of lectures during 5th, 6th& 7th Semester – 70 hours.
- Clinical postings: Total duration 8 weeks:
  - 6th semester 4 weeks
  - 7th semester 4 weeks
- Minimum eligibility to appear for the University examination: 35% of the Internal Assessment and 80% of the attendance of the total classes held during 5th, 6th& 7th Semester.

6. Evaluation and Pattern of Examination:-

The final MBBS examination (Part – I) will be held at the end of the 7th Semester ie. At the completion of 3 1/2 years after admission to the 4 1/2 years MBBS course

Scheme of Evaluation:-

Theory : 40 marks
Oral : 10 marks
Clinical : 30 marks
Internal Assessment : 20 marks
Total : 100 marks

Internal Assessment:-

For computation of Internal Assessment (20 marks, performance in the following examination are taken into consideration)

1. Theory – 3 internal assessment tests & 1 model theory exam
2. Clinical – 2 Clinical & Viva, voce, at the end of clinical postings during 6th& 7th Semester & 1 Model Clinical Exam

Theory:-

There will be I theory paper consisting of 2 sections. Duration of examination will be 2 hours. Questions for this examination are to be prepared from the course content according to the pattern of the MODEL QUESTION PAPER:-

Marks Distribution:-

Section: A

- Essay type question – 1, 8 marks : 1 X 8: 08
- Short Notes – 4 : each 3 marks : 4 X 3: 12

Total : 20 marks

Section: B

- Essay type question – 1, 8 marks : 1 X 8: 08
- Short Notes – 4 : each 3 marks : 4 X 3: 12

Total : 20 marks

Recommended Text Books:-

1. Diseases of Nose, Throat and Ear – A.G. Logan and Turner

2. Short Practice of Otorhinolaryngology – K.K. Ramalingam
3. Diseases of Ear, Nose and Throat – P.L. Dhingra 4th edition
4. Text Book of ENT Diseases – Mohd.Maqbool, 10th edition
5. Fundamentals of Ear, Nose and Throat – S.K.De
6. Disease of Ear, Nose & Throat - Mohan Bansal's

Model Question papers

Final M.B.B.S Degree Examination

Oto-Rhino-Laryngology

Answer Section – A & B in separate answer books,
Draw suitable diagrams wherever necessary

Time: 2 hours Max Marks: 40

Section – A

Essay:- **(08)**

1. Write the etiology signs & symptoms and management of Juvennile Nasopharyngeal Angiofibroma

2. Write Short notes on **(4 x 3 = 12)**

a. Aditus ad antrum
b. Vocal nodules
c. Otogenic Brain abscess
d. Caloric test

Section – B

Essay:- **(08)**

1. Mention the etiology, signs and symptoms and management of CSOM

2. Write Short notes on **(4 x 3 = 12)**

a. Diphtheria
b. Deaf mutism
c. Nasal Septum
d. Laser in ENT

OPHTHALMOLOGY

(i) GOAL:

The broad goal of the teaching of students in ophthalmology is to provide such knowledge and skills to the students that shall enable him/her to practice as a clinical and as a primary eye care physician and also to function effectively as a community health leader to assist in the implementation of National Programme for the prevention of blindness and rehabilitation of the visually impaired.

(ii) OBJECTIVES:

(A) Knowledge:

At the end of the course, the student shall have knowledge of :

a. common problems affecting the eye ;

b. principles of management of major ophthalmic emergencies ;

c. main systemic diseases affecting the eye ;

d. effects of local and systemic diseases on patient's vision and the necessary action required to minimize the sequelae of such diseases ;

e. adverse drug reactions with special reference to ophthalmic manifestations ;

f. magnitude of blindness in India and its main causes ;

g. national programme for control of blindness and its implementation at various levels;

h. eye care education for prevention of eye problems ;

i. role of primary health center in organization of eye camps ;

j. organization of primary health care and the functioning of the ophthalmic assistant ;

k. integration of the national programme for control of blindness with the other national health programmes ;

l. eye bank organization ;

(B) Skills:

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

a. elicit a history pertinent to general health and ocular status

b. assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiotz tonometry, Staining for Corneal pathology, confrontation perimetry, Subjective refraction including correction of presbyopia and aphakia, direct ophthalmoscopy and conjunctival smear examination and cover test ;

c. diagnose and treat common problems affecting the eye ;

d. interpret ophthalmic signs in relation to common systemic disorders ;

e. assist / observe therapeutic procedures such as subconjunctival injection, corneal / conjunctival foreign body removal, carbolic cautery for corneal ulcers, nasolacrimal duct syringing and tarsorraphy ;

f. provide first aid in major ophthalmic emergencies ;

g. assist to organize community surveys for visual check up ;

h. assist to organize primary eye care service through primary health centers ;

i. use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation ;

j. establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team.

(C) Integration

The undergraduate training in Ophthalmology will provide an integrated approach towards other disciplines especially Neurosciences, Otorhino-laryngology, General Surgery and Medicine.

OBSTETRICS AND GYNAECOLOGY

(Obstetrics and Gynaecology to include family welfare and family planning)

(i) GOAL:

The broad goal of the teaching of undergraduate students in Obstetrics and Gynaecology is that he/she shall acquire understanding of anatomy, physiology and pathophysiology of the reproductive system and gain the ability to optimally manage common conditions affecting it.

(ii) OBJECTIVES:

(A) Knowledge:

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

a. outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it ;
b. detect normal pregnancy, labour, puerperium and manage the problems he/she is likely to encounter therein ;
c. list the leading causes of maternal and perinatal morbidity and mortality ;
d. understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilization and their complications ;
e. identify the use, abuse and side effects of drugs in pregnancy, pre-menopausal and post-menopausal periods ;
f. describe the national programme of maternal and child health and family welfare and their implementation at various levels;
g. identify common gynaecological diseases and describe principles of their management ;
h. state the indications, techniques and complications of surgeries like caesarian section, laparotomy, abdominal and vaginal hysterectomy, Fothergill's operation and vacuum aspiration for Medical Termination of Pregnancy (MTP).

(B) Skills:

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

a. examine a pregnant woman; recognize high risk pregnancies and make appropriate referrals ;

b. conduct a normal delivery, recognize complications and provide postnatal care;

c. resuscitate the newborn and recognize congenital anomalies ;

d. advise a couple on the use of various available contraceptive devices and assist in insertion and removal of intra-uterine contraceptive devices.

e. Perform pelvic examination, diagnose and manage common gynaecological problems including early detection of genital malignancies ;

f. make a vaginal cytological smear, perform a post coital test and wet vaginal smear examination for trichomonas vaginalis, moniliasis and gram stain for gonorrhoea ;
g. interpretation of data of investigations like biochemical, histopathological, radiological, ultrasound etc.

(C) Integration

The student shall be able to integrate clinical skills with other disciplines and bring about co-ordination of family welfare programmes for the national goal of population control.

(D) General Guidelines for Training

a. attendance of a maternity hospital or the maternity wards of a general hospital including (i) antenatal care (ii) the management of the puerperium and (iii) a minimum period of 5 months inpatient and out-patient training including family welfare planning;

b. of this period of clinical instruction, not less than one month shall be spent as a resident pupil in a maternity ward of a general hospital;

c. during this period, the student shall conduct at least 10 cases of labour under adequate supervision and assist in 10 other cases;

d. a certificate showing the number of cases of labour attended by the student in the maternity hospital and/or patient homes respectively, shall be signed by a responsible medical officer on the staff of the hospital and shall state;

   - that the student has been present during the course of labour and personally conducted each case, making the necessary abdominal and other examinations under the supervision of the certifying officer who shall describe his official position.

   - that satisfactory written histories of the cases conducted including wherever possible antenatal and postnatal observations, were presented by the student and initialed by the supervising officer.

(E) Family Welfare Planning

Training in Family Welfare Planning shall be emphasized in all the three phases and during internship as per guidance provided in Appendix A.

COMMUNITY MEDICINE

The teaching of community, medicine will continue during the first two semesters of phase III (clinical phase). The goals, objectives and skills to be acquired by the student have already been outlined in Phase II (Para – Clinical Phase).

G) EXAMINATION REGULATIONS

Essentialities for qualifying to appear in professional examinations.

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

I) ATTENDANCE:

75% of attendance in a subject for appearing in the examination is compulsory, provided he/she has 80% attendance in non-lecture teaching, i.e. seminars, group discussions, tutorials, demonstrations, practical. hospital (tertiary, secondary, primary) postings and bedside clinics, etc.

II) Internal Assessment:

(i) it shall be based on day to-day assessment (see note), evaluation of student assignment, preparation for seminar, clinical case presentation etc;

(ii) regular periodical examinations shall be conducted throughout the course. The question of number of examinations is left to the institution:

(iii) day to day records should be given importance during internal assessment;

(iv) weightage for the internal assessment shall be 20% of the total marks in each subject;

(v) student must secure at least 35%***** marks of the total marks fixed for internal assessment in a particular subject in order to be eligible to appear in final university examination of that subject.

*** Modified under Notification No.MCI 326(3)/2003-Med./20958**

Note:

Internal assessment shall relate to different ways in which students participation in learning process during semesters is evaluated. Some examples are as follows:

(i) Preparation of subject for students' seminar.

(ii) Preparation of a clinical case for discussion.

(iii) Clinical case study/problem solving exercise.

(iv) Participation in Project for health care in the community (planning stage to evaluation)

(v) Proficiency in carrying out a practical or a skill in small research project.

(vi) Multiple choice questions (MCQ) test after completion of a system/teaching.

Each item tested shall be objectively assessed and recorded. Some of the items can be assigned as Home work/Vacation work.

III) University Examinations:

The examiners as prescribed will prepare theory papers. Nature of questions will be short answer type/objective type and marks for each part indicated separately.

Practicals/clinicals will be conducted in the laboratories or hospital wards. Objective will be to assess proficiency in skills, conduct of experiment, interpretation of data and logical conclusion. Clinical cases should preferably include common diseases not esoteric syndromes or rare disorders. Emphasis should be on candidate's capability in eliciting physical signs and their interpretation.

Viva/oral includes evaluation of management approach and handling of emergencies. Candidate's skill in interpretation of common investigative data, x-rays, identification of specimens, ECG, etc. also is to be evaluated.

The examinations are to be designed with a view to ascertain whether the candidate has acquired the minimum skills along with clear concepts of the fundamentals which are necessary for him to carry out his professional day to day work competently. Evaluation will be carried out on an objective basis.

During evaluation (both Internal and External) it shall be ascertained if the candidate has acquired the skills as detailed in Appendix-B.

There shall be one main examination in a year and a supplementary to be held not later than 6 months after the publication of its results. University Examinations shall be held as under: -

First Professional	–	In the second Semester of Phase I training, in the subjects of Anatomy, Physiology and Bio-Chemistry
Second Professional	–	In the Fifth semester of Phase II training, in the subjects of Pathology, Microbiology, Pharmacology and Forensic Medicine.
Third Professional-Part I	–	In the Seventh Semester of Phase III, in the subjects of Ophthamology, Oto-rhino-laryngology and Community Medicine
Third Professional-Part II– (Final Professional)	–	At the end of Phase III training in the subjects of Medicine, Surgery, Obstetrics & Gynaecology and Paediatrics.

Note:

Result of all university examinations shall be declared before the start for next semester.

II. DISTRIBUTION OF MARKS TO VARIOUS DISCIPLINES:

(B) First Professional Examination (Pre-Clinical Subjects):-
Anatomy, Physiology (Including Biophysics)& Biochemistry

Particulars	Marks (Max. 300)	
	Maximum	Passing (Min)
Theory (I & II)*	80 + 80	90
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

*** One applied question of 10 marks in each paper**

(B) Second Professional Examination (Para-Clinical Subjects):

PATHOLOGY, MICROBIOLOGY & PHARMACOLOGY

Particulars	Marks (Max. 300)	
	Maximum	**Passing (Min)**
Theory (I & II)	80 + 80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

*** One applied question of 10 marks in each paper**

FORENSIC MEDICINE

Particulars	Marks (Max. 200)	
	Maximum	Passing (Min)
Theory	80	50
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	20 + 20	14
Total	**200**	**100**

(C) Third Professional

(i) PART I (Clinical subjects)

Part I: To be conducted during end period of seventh semester.

OPHTHALMOLOGY & OTO-RHINO-LARYNGOLOGY

Particulars	Marks (Max. 100)	
	Maximum	Passing (Min)
Theory *	40	25
Oral (Viva)	10	
Practical	30	15
Internal Assessment (Theory & Clinical)	10 + 10	7
Total	**100**	**50**

*** Should contain one question on pre-clinical and para-clinical aspects of 10 marks.**

COMMUNITY MEDICINE (INLCUDING HUMANITIES)

Particulars	Marks (Max. 300)	
	Maximum	Passing (Min)
Theory (I & II)*	80 + 80	90
Oral (Viva)	20	
Practical	60	30
Internal Assessment (Theory & Practical)	30 + 30	21
Total	**300**	**150**

*** includes problem solving, applied aspects of management at primary level including essential drugs, occupational (agro based) diseases, rehabilitation and social aspects of community.**

(ii) PART II

Each paper shall have two sections. Questions requiring essay type answers may be avoided.

MEDICINE, SURGERY & OBS. & GYNAE.

Particulars	Marks (Max. 300)	
	Maximum	**Passing (Min)**
Theory (I & II)*	60 + 60	70
Oral (Viva)	20	
Clinical	100	50
Internal Assessment (Theory & Clinical)	30 + 30**	21
Total	**300**	**150**

*** Shall contain one question on basic sciences and allied subjects**

**** Includes 10 marks for Lab note books / case record**

Paper I – General Medicine,
Paper II – General Medicine
(including Psychiatry, Dermatology & S.T.D)

****Paper I – General Surgery (section 1)**
Orthopaedics (section 2)
Paper II - General Surgery (including Anaesthesiology, Dental diseases & Radiology).

Paper I – Obstetrics
Paper II – Gynaecology, Family Welfare and Demography

****** Paper I of Surgery shall have one section in Orthopaedics. The questions on Orthopaedic Surgery be set and assessed by examiners who are teachers in the Orthopaedic surgery.

PAEDIATRICS (INCLUDING NEONATOLOGY)

Particulars	Marks (Max. 200)	
	Maximum	**Passing (Min)**
Theory *	80	50
Oral (Viva)	20	
Clinical	60	30
Internal Assessment (Theory & Clinical)	20 + 20	14
Total	**100**	**50**

***Shall contain one question on basic sciences and allied subjects**

H) INTERNSHIP

(1) General

Internship is a phase of training wherein a graduate is expected to conduct actual practice of medical and health care and acquire skills under supervision so that he/she may become capable of functioning independently.

(2) Specific Objectives

At the end of the internship training, the student shall be able to:

(i) diagnose clinically common disease conditions encountered in practice and make timely decision for referral to higher level;

(ii) use discreetly the essential drugs, infusions, blood or its substitutes and laboratory services;

(iii) manage all types of emergencies-medical, surgical obstetric, neonatal and paediatric, by rendering first level care;

(iv) demonstrate skills in monitoring of the National Health Programmes and schemes, oriented to provide preventive and promotive health care services to the community;

(v) develop leadership qualities to function effectively as a leader of the health team organised to deliver the health and family welfare service in existing socio-economic, political and cultural environment;

(vi) render services to chronically sick and disabled (both physical and mental) and to communicate effectively with patient and the community.

(3) Time allocation:

Time allocation to each discipline is approximate and shall be guided more specifically by the actual experience obtained. Thus a student serving in a district or taluk hospital emergency room, may well accumulate skills in surgery, orthopaedics, medicine, obstetrics and gynaecology and paediatrics during even a single night on duty. Responsible authorities from the medical college shall adjust the intern experience to maximize intern's opportunities to practice skills in patient care in rough approximation of the time allocation suggested.

(4) Internship – Time Distribution

Compulsory

Community Medicine	2 months
Medicine	2 months
Surgery including Orthopaedics	2 months
Obst./Gynae.including Family Welfare Planning	2 months
Paediatrics	15 days
Ophthalmology	15 days
Otorhinolaryngology	15 days
Casualty	15 days
Elective Postings	One month

Elective Subjects

Elective posting will include Two of the following for 15 days in each subject.

i) Dermatology and Sexually Transmitted Diseases,

ii) Psychiatry,

iii) Tuberculosis and Respiratory Diseases,

iv) Anaesthesia,

v) Radio-diagnosis

vi) Physical Medicine and Rehabilitation,

vii) Forensic Medicine and Toxicology,

viii)Blood Bank and Transfusion Department.

(5) Other Details

(i) All parts of the internship shall be done as far as possible in institutions of India. In case of any difficulties, the matter may be referred to the Medical Council of India to be considered on individual merit.

(ii) Every candidate will be required after passing the final MBBS examination to undergo compulsory rotational internship to the satisfaction of the College authorities and University concerned for a period of 12 months so as to be eligible for the award of the degree of Bachelor of Medicine and Bachelor of Surgery (MBBS) and full registration.

(iii) The University shall issue a provisional MBBS pass certificate on passing the final examination.

(iv) The State Medical Council will grant provisional registration to the candidate on production of the provisional MBBS pass certificate. The provisional registration will be for a period of one year. In the event of shortage or unsatisfactory work, the appropriate authorities may suitably extend the period of provisional registration and the compulsory rotating internship.

(v) The intern shall be entrusted with clinical responsibilities under direct supervision of senior medical officer. They shall not be working independently.

(vi) Interns will not issue a medical certificate or a death certificate or a medicolegal document under their signature.

(vii) In recognition of the importance of hands-on experience, full responsibility for patient care and skill acquisition, internship should be increasingly scheduled to utilize clinical facilities available in District Hospital, Taluk Hospital, Community Health Centre, and Primary Health Centre, in addition to Teaching Hospital. A critical element of internship will be the acquisition of specific experiences and skills as listed in major areas:

Provided that where an intern is posted to District/Sub Divisional Hospital for training, there shall be a committee consisting of representatives of the college/university, the State Government and the District administration, who shall regulate the training of such trainee.

Provided further that for such trainee a certificate of satisfactory completion of training shall be obtained from the relevant administrative authorities, which shall be countersigned by the Principal/Dean of college.

(viii) Adjustment to enable a candidate to obtain training in elective clinical subjects may be made.

(ix) Each medical college shall establish links with one entire district extending out reach activities. Similarly, Re-orientation of Medical Education (ROME) scheme may be suitably modified to assure teaching activities at each level of District health system which will be coordinated by Dean of the medical college;

(x) Out of one year, 6 months shall be devoted to learning tertiary care being rendered in teaching hospital/district hospital suitably staffed with well qualified staff, 3 months of secondary care in a small District or Taluk Hospital/Community Health Centre and 3 months in Primary Health care out of which 2 months should be in Primary Health Centre with full attention to the implementation of National Health Programme at the Community level. One month of primary care training may be in the form of preceptorship with a practicing family physician or voluntary agency or other primary health care provider.

(xi) One year's approved service in the Armed Forces Medical Services, after passing the final MBBS examination shall be considered as equivalent to the pre-registration training detailed above; such training shall, as far as possible, be at the Base/General Hospital.

(6) ASSESSMENT OF INTERNSHIP:

(i) The Intern shall maintain a record of work, which is to be verified and certified by the medical officer under whom he works. Apart from scrutiny of the record of work, assessment and evaluation of training shall be undertaken by an objective approach using situation tests in knowledge, skills and attitude during and at the end of training. Based on the record of work and date of evaluation, the Dean/Principal shall issue certificate of satisfactory completion of training, following which the University shall award the MBBS degree or declare him eligible for it.

(ii) Satisfactory completion shall be determined on the basis of the following:

1.	Proficiency of knowledge required for each case	Score 0-5
2.	The competency in skills expected to manage each case a) Competency for performance of self-performance, b) of having assisted in procedures, c) of having observed.	Score 0-5
3.	Responsibility, punctuality, work up of case involvement in treatment, follow-up reports	Score 0-5
4.	Capacity to work in a team (Behaviour with colleagues, nursing staff and relationship with paramedicals)	Score 0-5
5.	Initiative, participation in discussions, research aptitude.	Score 0-5

Poor	/	*Fair*	/	*Below average*	/	*average*	/	*above average*	/	*excellent*
0		*1*		*2*		*3*		*4*		*5*

A Score of less than 3 in any of above items will represent unsatisfactory completion of Internship.

7)Full registration

It shall only be given by the State Medical Council/Medical Council of India on the award of the MBBS degree by the university or its declaration that the candidate is eligible for it.

8)Some guidelines

Some guideline in the implementation of the training programme are given below.

9) Internship – (Discipline Related)

(A) Community Medicine:

Interns shall acquire skills to deal effectively with an individual and the community in the context of primary health care. This is to be achieved by hands on experience in the district hospital and primary health centre. The details of training are as under: -

(a) Community Health Centre/District Hospital/Attachment to General Practitioner:

1. During this period of internship an intern must acquire

   a) clinical competence for diagnosis of common ailments, use of bed side investigation and primary care techniques;

   b) gain information on `Essential drugs' and their usage;

c) recognize medical emergencies, resuscitate and institute initial treatment and refer to suitable institution ;

2. Undergo specific Government of India/Ministry of Health and Family Welfare approved training using Government of India prescribed training manual for Medical Officers in all National Health Programmes (e.g. child survival and safe mother hood-EPI, CDD, ARI, FP, ANC, safe delivery, Tuberculosis, Leprosy and others as recommended by Ministry of Health and Family Welfare:-

    a) gain full expertise in immunization against infectious disease;

    b) participate in programmes in prevention and control of locally prevalent endemic diseases including nutritional disorders;

    c) learn skills first hand in family welfare planning procedures;

    d) learn the management of National Health Programmes;

3. Be capable of conducting a survey and employ its findings as a measure towards arriving at a community diagnosis.

4. a) Conduct programmes on health education,

    b) gain capabilities to use Audiovisual aids,

    c) acquire capability of utilization of scientific information for promotion of community health.

5. Be capable of establishing linkages with other agencies as water supply, food distribution and other environment/social agencies.

6. Acquire quality of being professional with dedication, resourcefulness and leadership.

7. Acquire managerial skills, delegation of duties to paramedical staff and other health professionals.

(b) Taluk Hospital

Besides clinical skill, in evaluation of patient in the environment and initiation of primary care, an Intern shall: -

1. effectively participate with other members of the health team with qualities of leadership;

2. make a community diagnosis in specific situations such as epidemics and institute relevant control measures for communicable diseases;

3. develop capability for analysis of hospital based morbidity and mortality statistics.

4. use of essential drugs in the community with the awareness of availability, cost and side effects;

5. provide health education to an individual/community on;

a) tuberculosis;

b) small family, spacing, use of appropriate contraceptives;

a) applied nutrition and care of mothers and children;

b) immunization;

c) participation in school health programme.

(c) Primary Health Centre

1. Initiate or participate in Family composite health Care (birth to death), Inventory of events;

2. participate in all of the modules on field practice for community health e.g. safe motherhood, nutritional surveillance and rehabilitation, diarrohea disorders etc.;

3. acquire competence in diagnosis and management of common ailments e.g. malaria, tuberculosis, enteric fever, congestive heart failure, hepatitis, meningitis, acute renal failure etc.;

4. acquire proficiency for Family Welfare Programmes (ante natal care, normal delivery, contraception care etc.)

(B) General Medicine

(i) Interns shall acquire following training during their term.

1. acquire competence for clinical diagnosis based on history, physical examination and relevant laboratory investigation and institute appropriate line of management;

2. this would include diseases common in tropics (parasitic, bacterial or viral infections, nutritional disorders, including dehydration and electrolyte disturbances) and system illnesses.

(ii) The intern shall have assisted as a care team in intensive care of cardiac, respiratory, hepatic, neurological and metabolic emergencies.

(iii) The intern shall be able to conduct the following laboratory investigations:

a) Blood: (Routine haematology smear and blood groups);

b) Urine: (Routine chemical and microscopic);

c) Stool: (for ova/cyst and occult blood);

d) Sputum and throat swab for gram stain or acid fast stain and

e) Cerebro Spinal Fluid (CSF) for smear.

(iv) Conduct following diagnostic procedures:

a) Urethral catheterisation, Proctoscopy; Ophthalmoscopy/Otoscopy; Indirect laryngoscopy;

b) Therapeutic procedures; Insertion of Ryles Tube; Pleural, ascitic tap, Cerebro spinal Fluid (CSF) tap, installing of air way tube, Oxygen administration etc.

(v) Biopsy Procedures:

Liver, Kidney, Skin, Nerve, Lymph node, and muscle biopsy, Bone marrow aspiration, Biopsy of malignant lesions on surface, Nasal/nerve/skin smear for leprosy.

(vi)a) Familiarity with usage of life saving procedures: including use of aspirator respirator and defibrillator.

b) Competence in interpretation of different monitoring devices such as cardiac monitor, blood gas analysis etc.

(vii) Participate as a team member in total health care of an individual including appropriate follow-up and social rehabilitation.

(viii) Other competencies as indicated in general objectives.

(C) Paediatrics:

The details of the skills that an intern shall acquire during his/her tenure in the department of Paediatrics are as follows:

The intern shall be able to:

1. diagnose and manage common childhood disorders including neonatal disorders and acute emergencies (enquiry from parents of sick children), examining a sick child and making a record of information.

2. carry out activities related to patient care such as laboratory work, investigative procedures and use of special equipments. The details are given as under:-

    a. diagnostic techniques: blood (including from femoral vein and umbilical cord), abscess, cerebrospinal fluid, urine, pleura and peritoneum and common tissue biopsy techniques;

    b. techniques related to patient care: immunization, perfusion techniques, feeding procedures, tuberculin testing & breast feeding counselling;

    c. use of equipment: vital monitoring, temperature monitoring, resuscitation at birth and care of children receiving intensive care;

3. screening of newborn babies and those with objective risk factors for any anomalies and steps for prevention in future;

4. plan in collaboration with parents and individual, collective surveillance of growth and development of new born babies, infants and children so that he/she is able to:
    a. recognise growth abnormalities;
    b. recognise anomalies of psychomotor development;
    c. detect congenital abnormalities;

5. assess nutritional and dietary status of infants and children and organise prevention, detection and follow up of deficiency disorders both at individual and community level such as:

    a. protein-energy malnutrition;

    b. deficiencies of vitamins especially A,B,C, and D;

    c. Iron deficiency;

6. institute early management of common childhood disorders with special reference to paediatric dosage and oral rehydration therapy.

7. participate actively in public health programme oriented towards children in the community.

(D) General Surgery

An intern is expected to acquire following skills during his/her posting:

1. Diagnose with reasonable accuracy all surgical illnesses including emergencies.

2. a. resuscitate a critically injured patient and a severe burns patient;

   b. control surface bleeding and manage open wound;

3. a. monitor patients of head, spine, chest, abdominal and pelvic injury:

   b. institute first-line management of acute abdomen;

4. a. perform venesection;

   b. perform tracheostomy and endotracheal intubation;

   c. catheterise patients with acute retention or perform trocar cystostomy,

   d. drain superficial abscesses,

   e. suturing of wound,

   f. perform circumcision,

   g. biopsy of surface tumours,

   h. perform vasectomy.

(E). Casualty

The intern after training in Casualty must be able to:

1. identify acute emergencies in various disciplines of medical practice;
2. manage acute anaphylactic shock;
3. manage peripheral-vascular failure and shock;
4. manage acute pulmonary oedema and Left Ventricular failure (L.V.F..;
5. undertake emergency management of drowning, poisonings and seizures;
6. undertake emergency management of bronchial asthma and status asthmaticus;
7. undertake emergency management of hyperpyrexia;
8. undertake emergency management of comatose patients regarding airways positioning, prevention of aspiration and injuries;
9. assess and administer emergency management of burns;
10. assess and do emergency management of various trauma victims
11. identify medicolegal cases and learn filling up forms as well as complete other medicolegal formalities in cases of injury, poisoning, sexual offenses, intoxication and other unnatural conditions.

(F) Obstetrics and Gynaecology:

Technical skills that interns are expected to learn:

1. diagnosis of early pregnancy and provision of ante-natal care;
2. diagnosis of pathology of pregnancy related to
    a) abortions;
    b) ectopic pregnancy;
    c) tumours complicating pregnancy;
    d) acute abdomen in early pregnancy;
    e) hyper emesis gravidarum;
3. detection of high risk pregnancy cases and suitable advise e.g. PIH, hydramanios, antepartum haemorrhage, multiple pregnancies, abnormal presentations and intra-uterine growth retardation;
4. antenatal pelvic assessment and detection of cephalopelvic disproportion;

5. induction of labour and amniotomy under supervision;

6. management of normal labour, detection of abnormalities, postpartum hemorrhage and repair of perianal tears;

7. assist in forceps delivery;

8. assist in caesarean section and postoperative care thereof;

9. detection and management of abnormalities of lactation

10. perform non-stress test during pregnancy;

11. per speculum, per vaginum and per rectal examination for detection of common congenital, inflammatory, neoplastic and traumatic conditions of vulva, vagina, uterus and ovaries;

12. medicolegal examination in Gynecology and Obstetrics.

13. to perform the following procedures:-

    a. dilatation and curettage and fractional curettage;

    b. endometrial biopsy;

    c. endometrial aspiration;

    d. pap smear collection;

    e. Intra Uterine Contraceptive Device (IUCD. insertion;

    f. minilap ligation;

    g. urethral cathereterisation;

    h. suture removal in postoperative cases;

    i. Cervical punch biopsy;

14. to assist in major abdominal and vaginal surgery cases in Obstetrics and Gynaecology.

15. to assist in follow up postoperative cases of obstetrics and gynaecology such as:

    a. Colposcopy;

    b. Second trimester Medical Termination of Pregnancy (MTP. procedures e.g. Emcredyl Prostaglandin instillations;

16. To evaluate and prescribe oral contraceptive.

(G) Oto Rhino Laryngology (E.N.T.)

1. Interns shall acquire ability for a comprehensive diagnosis of common Ear; Nose and Throat (ENT. diseases including the emergencies and malignant neoplasms of head and neck;

2. he/she shall acquire skills in the use of head mirror, otoscope and indirect laryngoscopy and first line of management of common Ear, Nose and Throat (ENT. problems;

3. he/she shall be able to carry out minor surgical procedures such as:

    a. ear syringing, antrum puncture and packing of the nose for epistaxis,

    b. nasal douching and packing of the external canal,

    c. remove the foreign bodies from the nose and ear,

    d. observed or assisted in various endoscopic procedures and tracheostomy;

4. an intern shall have participated as a team member in the community diagnosis e.g. Chronic Suppurative Otitis Media (CSOM. and be aware of National Programme on prevention of deafness

5. he/she shall possess knowledge of various ENT rehabilitative programmes.

(H). Ophthalmology

An intern shall acquire following skills:-

1. he/she shall be able to diagnose and manage common ophthalmological conditions such as; Trauma, Acute conjunctivitis, allergic conjunctivitis, xerosis, entropion, corneal ulcer, iridocyclitis, myopia, hypermetropia, cataract, glaucoma, ocular injury and sudden loss of vision;

2. he shall be able to carry out assesment of refractive errors and advise its correction;

3. he shall be able to diagnose ocular changes in common systemic disorders;

4. he/she shall be able to perform investigative procedures such as:-

    Tonometry, syringing, direct ophthalmoscopy, subjective refraction and fluorescein staining of cornea.

5. he/she shall have carried out or assisted the following procedures:

    a. Subconjunctival injection;

    b. Ocular bandaging;

    c. Removal of concretions;

    d. Epilation and electroysis;

    e. Corneal foreign body removal;

f. Cauterization of corneal ulcers;

g. Chalazion removal;

h. Entropion correction;

i. Suturing conjuctival tears;

j. Lids repair;

k. Glaucoma surgery (assisted.;

l. Enucleation of eye in cadaver;

6. he/she shall have full knowledge on available methods for rehabilitation of the blind.

(I) Orthopaedics

(i) GOAL:

The aim of teaching the undergraduate student in Orthopaedics and Rehabilitation is to impart such knowledge and skills that may enable him to diagnose and treat common ailments. He shall have ability to diagnose and suspect presence of fracture, dislocation, acute osteomyelitis, acute poliomyelitis and common congenital deformities; such as congenital talipesequinovarus (CTEV. and dislocation of hip CDH)

1. Therapeutic: An intern must know:

   a. Splinting (plaster slab. for the purpose of emergency splintage, definitive splintage and post operativesplintage and application of Thomas splint;

   b. Manual reduction of common fractures-phalangeal, metacarpal, metatarsal and Colles's fracture;

   c. Manual reduction of common dislocations-interphalangeal, metacarpophalangeal,elbow and shoulder dislocations;

   d. Plaster cast application for undisplaced fractures of arm, forearm, leg and ankle;

   e. Emergency care of a multiple injury patients;

   f. Precautions about transport and bed care of spinal cord injury patients.

2. Skill that an intern should be able to perform under supervision:

   a. Advise about prognosis of poliomyelitis, cerebral palsy, CTEV and CDH;

   b. Advise about rehabilitation of amputees and mutilating traumatic and leprosydeformities of hand;

3. An intern must have observed or preferably assisted at the following operations:

a. drainage for acute osteomyelitis;

b. sequestrectomy in chronic osteomyelitis;

c. application of external fixation;

d. internal fixation of fractures of long bones.

(J) Dermatology & Sexually Transmitted Diseases

An intern must be able to:-

1. conduct proper clinical examination; elicit and interpret physical findings, and diagnose common disorders and emergencies.

2. perform simple, routine investigative procedures for making bedside diagnosis, specially the examination of scrapings for fungus, preparation of slit smears and staining for AFB for leprosy patient and for STD cases;

3. take a skin biopsy for diagnostic purpose;

4. manage common diseases recognizing the need for referral for specialized care in case of inappropriateness of therapeutic response.

(K) Psychiatry

An Intern must be able to:

1. diagnose and manage common psychiatric disorders:

2. identify and manage psychological reaction and psychiatric disorders in medical and surgical patients in clinical practice and community setting.

(L) Tuberculosis & Respiratory Diseases

An intern after training must be able to: -

1. conduct proper clinical examination elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies;

2. perform simple, routine investigative procedures required for making bed side diagnosis, specially sputum collection, examination for etiological organism like AFB interpretation of chest X-rays and respiratory function tests;

3. Interpret and manage various blood gases and pH abnormalities in various respiratory disease;

4. manage common diseases recognizing need for referral or specialized care in case of inappropriateness of therapeutic response;

5. perform common procedures like laryngoscopy, pleural aspiration, respiratory physio-therapy, laryngeal intubation and pneumo-thoracic drainage aspiration.

(M) Anaesthesia

After the internship in the department of Anaesthesiology an intern shall acquire knowledge, skill and attitude to;

1. perform pre-anaestheticcheck up and prescribe pre-anaesthetic medications;
2. perform venepuncture and set up intravenous drip;
3. perform laryngoscopy and endotracheal intubation
4. perform lumbar puncture, spinal anaesthesia and simple nerve blocks;
5. conduct simple general asaesthetic procedures under supervision;
6. monitor patients during anaesthesia and post-operative period;
7. recognize and manage problems associated with emergency anaesthesia;
8. maintain anaesthetic records;
9. recognize and treat complication in post operative period;
10. perform cardio-pulmonary brain resuscitation (C.P.B.R.. correctly, including recognition of cardiac arrest.

(N) Radio-diagnosis:

An intern after training must be able to identify and diagnose:

1. all aspects of Emergency Room Radiology like –
    a. all acute abdominal conditions;
    b. all acute traumatic conditions with emphasis on head injuries;
    c. differentiation between medical and surgical radiological emergencies;
2. Basic hazards and precautions in Radiodiagnostic practices.

(O) Physical Medicine & Rehabilitation

An intern is expected to acquire the following skills during his/her internship:-

1. competence for clinical diagnosis based on detailed history and assessment of common disabling conditions like poliomyelitis, cerebral palsy, hemiplegia, paraplegia, amputations etc;

2. participation as a team member in total rehabilitation including appropriate follow-up of common disabling conditions;

3. principles and procedures of fabrication and repair of artificial limbs and appliances;

4. various therapeutic modalities;

5. use of self help devices and splints and mobility aids;

6. familiarity with accessibility problems and home making for the disabled;

7. ability to demonstrate simple exercise therapy in common conditions like prevention of deformity in polio, stump exercise in an amputee etc;

(P) Forensic Medicine and Toxicology

The intern to be posted in the casualty department of the hospital while attached under Forensic Medicine Department with the following objectives;

1. to identify medicolegal problems in a hospital and general practice;

2. to identify and learn medicolegal responsibilities of a medical man in various hospital situations;

3. to be able to diagnose and learn management of basic poisoning conditions in the community;

4. to learn how to handle cases of sexual assault;

5. to be able to prepare medico-legal reports in various medico legal situations;

6. to learn various medico legal post-mortem procedures and formalities during its performance by police.

I) RULES AND REGULATIONS FOR INTERNSHIP

1. Date Of Commencement:

Compulsory Rotatory Resident Internship training will ordinarily commence on 1st July / 1st February every year.

2. Duration:

The duration of the Internship Training is one year in 4 blocks as under:-

Medicine	– 3 months including 15 days in Intensive Care Unit.
Surgery	– 3 months including 15 days in Orthopaedics.
Obstetrics & Gynaecology	– 3 months including 1 month in Paediatrics
Community Medicine	– 2months.

3. Joining Internship Training:

Interns posted for training at Rajah Muthiah Medical College/Hospital will be permitted to join by the Principal/Medical Superintendent only on production of "Nil arrears" certificate from the concerned Warden. They must also produce a certificate from the warden about vacating the hostel, from the concerned Warden. (CRRIs are advised to get these certificates well before the commencement to avoid any delay in their joining the Internship training.

4. Leave:

a. The CRRIs are permitted to avail leave to a maximum of 1 month during the Internship Training subject to the following conditions:-

- that the leave does not exceed 7 days in each of the 3 blocks and
- that it does not exceed 10 days in one block.

ICU, Paediatrics &Orthopaedics } - not more than 2 days, provided it does not exceed the limit prescribed for the block

b. No leave of any other kind permitted.

c. Applications for any kind of leave should be made through unit chief & proper channel

d. Leave applied for may be availed only after it is sanctioned.

5. Grace Period:

a. A grace period of 10 days from the scheduled date of completion is permissible.

b. Any extension beyond the grace period, will be shown in the CRRI completion certificate

6. Stipend:

a. A monthly stipend fixed by the University (likely to be revised from time to time is payable.

b. However, graduates migrating from other colleges are not eligible for stipend.

c. CRRIs are eligible for stipend for 12 months during the tenure of internship.

d. Payment of stipend will be withheld when a CRRI avails of more than 7 days leave in a month

e. Claim for the withheld stipend will be considered only on receipt of a certificate from the Principal, giving details of attendance for the month from the concerned unit chief and countersigned by Head of Department.

7. Registration With The State Medical Council:

Interns should produce a copy of the Temporary Registration Certificate to the Principal's office within one month from the date of commencement of the Internship training, failing which the monthly stipend will not be paid. For those who fail to produce the Temporary Registration Certificate within the grace period, the stipend will be payable from the date of submission of the Temporary Registration Certificate. Further they will not be permitted to continue the CRRI Training until they produce the TRC.

8. Migration To Institutions Outside R.M.M.C:

a. Application for No objection Certificate for migration to other Institutions should be submitted 15 days before the scheduled date of commencement of the Internship Training, through the Principal, to the Registrar, Annamalai University.

b. Applications received after the date fixed, will not be considered for the issue of N.O.C. Applications for migration will be accepted only after the publication of results of the final MBBS examinations.

c. A sum of Rs.3,00,000/- (Rupees Three Lakhs is payable towards the issue of N.O.C. However for interns migrating from other institutions to RMMC, Rs.50,000/- is payable for the issue of N.O.C.

d. The Principal on the basis of the exigencies will fix a ceiling on the number of CRRIs migrating to outside Institutions.

e. Those who wish to migrate to non-teaching Institutions are advised to undergo their Internship training in Community Medicine in a teaching Institution.

9. Accommodation:

a. Rent Free accommodation will be provided to all CRRIs in the CRRI quarters.

b. However, they will pay establishment charges.

c. Dining in the mess attached to the CRRI quarters is compulsory. The mess charges will be recovered from the stipend payable to the Interns

d. The rent-free accommodation is offered for a maximum period of 13 months from the date of commencement of Internship.

10. Certificate Of Completion Of Internship

a. The Principal, on satisfactory completion of the above training, will issue the certificate of completion of Internship Training.

b. The certificate will be issued only on production of 'Nil Arrears Certificate' a certificate from the Warden of CRRI quarters that the Intern has vacated the quarters.

c. Extension beyond 10 days (grace period allowed. will be shown in the certificate and may form the basis of assessment of `conduct'.

11. General:

a. All CRRIs will sign in the attendance register kept in the office of the Medical Superintendent, RMMCH at 8 a.m.
b. As part of their clerkship, they will write case sheets neatly, legibly and affix their signature. They should mention their names below their signature and record date and time of documentation.

c. They should generally remain in the wards where they are posted and should not leave without the permission of the unit chief.

TIME TABLE

FIRST AND SECOND SEMESTER

Days	**9 – 10**	**10 – 11**	**11 – 12**	**12 – 1**	**1 – 2**	**2 – 3**	**3 – 4**	**4 – 5**
Monday	Physiology	Anatomy	Physiology	Biochemistry	**Lunch**	Anatomy		
Tuesday	Physiology	Biochemistry	Physiology / Biochemistry Practical			Anatomy		
Wednesday	Physiology	Anatomy	Anatomy Practical			Physiology / Biochemistry Practical		
Thursday	Physiology	Anatomy	Anatomy Practical			Physiology / Biochemistry Practical		

Friday	Biochemistry	Anatomy	Anatomy Practical		Physiology / Demonstration	Anatomy demonstration
Saturday	Evaluation					

THIRD SEMESTER

Days	8 - 9	9 – 12	12 - 1	1 – 2	2 - 3	3 – 5
Monday	Medicine	**Clinical Postings**	**Lunch**	Pathology	Pharmacology	**Practicals**
Tuesday	Obs. &Gynae			Pathology	Microbiology	
Wednesday	Pathology			Microbiology	Pharmacology	
Thursday	Obs. &Gynae			Microbiology	Community Medicine	
Friday	Surgery			Forensic Medicine	Pharmacology	
Saturday	**General Clinics / Internal Assessment**					

FOURTH SEMESTER

Days	8 - 9	9 – 12	12 - 1	1 – 2	2 - 3	3 – 5
Monday	Medicine	**Clinical Postings**	**Lunch**	Pathology	Pharmacology	**Practicals**
Tuesday	Obs. &Gynae			Pathology	Microbiology	
Wednesday	Pathology			Microbiology	Pharmacology	
Thursday	Obs. &Gynae			Microbiology	Community Medicine	
Friday	Surgery			Forensic Medicine	Pharmacology	
Saturday	**General Clinics / Internal Assessment**					

FIFTH SEMESTER

Days	8 - 9	9 – 12	12 - 1	1 – 2	2 – 3	3 – 5
Monday	Ophthalmology	**Clinical Postings**	**Lunch**	Pathology	Pharmacology	**Practicals**
Tuesday	ENT			Pathology	Microbiology	
Wednesday	Obs. &Gynae			Pathology	Forensic Medicine	
Thursday	Surgery			Microbiology	Forensic Medicine	
Friday	Medicine			Microbiology	Pharmacology	
Saturday	**General Clinics / Internal Assessment**					

SIXTH SEMESTER

Days	8 – 10.45	11 – 12	12 - 1	1 – 2	2 - 3	3 – 4
Monday	Clinical Postings	Ophthalmology	Medicine	Lunch	Orthopedics	Medicine
Tuesday		Skin & STD	Obs. &Gynae		Surgery	Orthopaedics
Wednesday		Community Medicine	Medicine		Medicine	Surgery
Thursday		ENT	Ophthalmology		Paediatrics	Obs. &Gynae
Friday		Dental	Radiology		Obs. &Gynae	Surgery
Saturday	**General Clinics / Internal Assessment**					

SEVENTH SEMESTER

Days	8 – 10.45	11 – 12	12 - 1	1 – 2	2 - 3	3 – 4
Monday	Clinical Postings	Ophthalmology	Medicine	Lunch	Orthopedics	Medicine
Tuesday		TB & Chest	Obs. &Gynae.		Surgery	Orthopaedics
Wednesday		Community Medicine	Medicine		Medicine	Surgery
Thursday		ENT	Ophthalmology		Paediatrics	Obs. &Gynae
Friday		Psychiatry	Anaesthesiology		Obs. &Gynae	Surgery
Saturday	**General Clinics / Internal Assessment**					

EIGHTH SEMESTER

Days	8 – 1	1 - 2	2 - 3	3 – 4
Monday	**Clinical Postings**	**Lunch**	Surgery	Paediatrics
Tuesday			Obs. &Gynae	Surgery
Wednesday			Paediatrics	Obs. &gynae
Thursday			Medicine	Surgery
Friday			Skin & STD	Medicine

NINTH SEMESTER

Days	8 – 1	1 - 2	2 - 3	3 – 4
Monday	**Clinical Postings**	**Lunch**	Surgery	Paediatrics
Tuesday			Obs. &Gynae	Surgery
Wednesday			Paediatrics	Obs. &gynae
Thursday			Medicine	Surgery
Friday			Orthopaedics	Medicine

Curriculum in `Family Welfare' for the Bachelor of Medicine and Bachelor of Surgery (MBBS) Course

The curriculum may be considered under various pre and para clinical heads and the following details are worked out for each of the disciplines.

1. Anatomy:

1. Gross and microscopic anatomy of the male and female generative organs.
2. The menstrual cycle.
3. Spermatogenesis and Oogenesis.
4. Fertilisation of the ovum.
5. Tissue and organ changes in the mother in pregnancy.
6. Embryology and Organogensis.
7. Principles of Genetics.
8. Applied anatomy of mechanical methods of preventing conception.
   a. in female – chemical contraceptive, pessaries, Intra-Uterine Contraceptive Device(IUCD., tubectomy etc.
   b. in male – condom, vasectomy etc.

2. Physiology:

1. Physiology of reproduction.
2. Endocrines and regulation of reproduction in the female.
3. Endocrines and physiology of reproduction in the male.
4. Physiology and Endocrinology of pregnancy, parturition and lactation.
5. Nutritional needs of mother and child during pregnancy and lactation.
6. The safe period-rhythm method of contraception.
7. Principles of use of oral contraceptives.

3. Pharmacology

1. Mode of action and administration of:
   a) Chemical Contraceptive
   b) Oral contraceptive
2. Contra indications for administration of contraceptives.

3. Toxic effects of contraceptives.

4. Community Medicine

1. The need for Family Welfare Planning.
2. Organization of Family Welfare Planning service.
3. Health Education in relation to Family Welfare Planning.
4. Nutrition.
5. Psychological needs of the mother, the child and the family.
6. Demography and vital Statistics.

5. Obstetrics & Gynaecology

1. contraceptive methods in male/female.
   a) Mechanical
      - Pessaries, Intra Uterine Contraceptive Device (IUCD., Condoms,
      - Tubectomy and Vasectomy.
   b) Chemical
   c) Oral
   d) Rhythm Method
2. Demonstrations of use of Pessaries, IUCD, Condoms and technique of tubectomy.
3. Advice on family planning to be imparted to parents.

6. Paediatrics:

1. Problems of child health in relation to large family.
2. Organization of pediatric services.
3. Nutritional problems of mother and child.
4. Childhood diseases due to overcrowding.

7. Surgery:

Technique of Vasectomy.

I. Compulsory Internship:

Placement of a student for in-service training in a family welfare planning clinic for a period of at least one month.

II. Examinations:

It is necessary that questions on family welfare planning be introduced in the theory, practical and oral examination throughout the MBBS course.

The curriculum content has been indicated subject wise. However, it would be more advantageous to the student for purpose of integrated learning and for understanding of the subject if family welfare planning instruction with the curriculum content indicated, could be divided into two parts.

Part I Anatomy, Physiology, Biochemistry and Pharmacology:

There shall be close integration in the teaching of these subjects. It is suggested that during the early para-clinical years, two to three weeks may be set apart for instruction in Family Welfare planning relating to these subjects; so that the student gets an overall understanding of the principles and practice of "Family Planning" within the limited time available for covering all the subjects of the medical course. The method suggested would save time and repetition of essential facts.

Part-II

This includes the later para-clinical and clinical courses. The practical aspects of Family Welfare Planning methods should be emphasized. The programme of instruction shall be supervised by the Department of Obstetrics and Gynaecology. The department of Community Medicine Internal Medicine, Psychiatry, Paediatrics and Surgery must be closely associated in imparting instruction relating to the problems arising for want of family welfare planning and the advantages to society and the individual which will be gained by adopting the measures suggested.

Seminars:

The medical colleges shall organize occasional seminars in which staff from all departments and the in-service trainees shall participate.

A comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS. Graduate:

1. Clinical Evaluation:

1. To be able to take a proper and detailed history.
2. To perform a complete and thorough physical examination and elicit clinical signs.
3. To be able to properly use the stethoscope, Blood Pressure Apparatus, Auroscope, Thermometer, Nasal Speculum, Tongue Depressor, Weighing Scales, Vaginal Speculum etc.;
4. To be able to perform internal examination – Per Rectum (PR., Per Vaginum (PV. etc.;
5. To arrive at a proper provisional clinical diagnosis.

II. Bedside Diagnostic Tests:

1. To do and interpret Haemoglobin (Hb., Total Count (TC., Erythrocyte
2. Total WBC count and Differential count
3. Erythrocyte Sedimentation Rate (ESR), blood smear for parasites,
4. Urine examination /albumin/sugar/ketones/microscopic;
5. Stool exam for ova and cysts;
6. Gram staining and Ziehl-Nielsen staining for AFB;
7. To do skin smear for leprabacilll;
8. To do and examine a wet film vaginal smear for Trichomonas;
9. To do a skin scraping and Potassium Hydroxide (KOH. stain for fungus infections;
10. To perform and read Montoux Test.

III. Ability to Carry Out Procedures;

1. To conduct CPR (Cardiopulmonary resuscitation. and First aid in newborns, children and adults.
2. To give Subcutaneous (Sc./Intramuscular (IM./Intravenous (IV. injections and start Intravenous (IV. infusions.
3. To pass a Nasogastric tube and give gastric lavage.
4. To administer oxygen- by mask catheter.
5. To administer enema.
6. To pass a urinary catheter – male and female
7. To insert flatus tube
8. To do pleural tap, Ascitic tap & lumbar puncture
9. Insert intercostal tube to relieve tension pneumothorax
10. To relieve cardiac tamponade
11. To control external Haemorrhage

IV. Anasthetic Procedure:

1. Administer local anaesthesia and nerve block
2. Be able to secure airway patency; administer Oxygen by Ambu bag.

V. Surgical Procedures:

1. To apply splints, bandages and Plaster of Paris (POP. slabs;
2. To do incision and drainage of abscesses;
3. To perform the management and suturing of superficial wounds;
4. To carry on minor surgical procedures, e.g. excision of small cysts and nodules, circumcision, reduction of paraphimosis, debridement of wounds etc.;
5. To perform vasectomy;
6. To manage anal fissures and give injections for piles.

VI. Mechanical Procedures

1. To perform thorough antenatal examination and identify high-risk pregnancies.
2. To apply low forceps and perform and suture episiotomies;
3. To insert and remove IUD's and to perform tubectomy.

VII. Paediatrics:

1. To assess newborns and recognise abnormalities and I.U. retardation;
2. To teach infant feeding to mothers;
3. To monitor growth by the use of `road to health chart' and to recognize development retardation;
4. To assess dehydration and prepare and administer Oral Rehydration Therapy (ORT).;
5. To recognise ARI clinically;

VIII. ENT Procedures:

1. To be able to remove foreign bodies;
2. To perform nasal packing for epistaxis;
3. To perform trachesotomy;

IX. Ophthalmic Procedures

1. To invert eye-lids;
2. To give Subconjunctival injection;
3. To perform epilation of eye-lashes;

4. To measure the refractive error and advise correctional glasses;

5. To perform nasolacrimal duct syringing for patency.

X. Dental Procedures:

1. To perform dental extraction

XI.Community Health:

1. To be able to supervise and motivate, community and para-professionals for cooperative efforts for the health care;

2. To be able to carryon managerial responsibilities, e.g. Management of stores, indenting and stock keeping and accounting;

3. Planning and management of health camps;

4. Implementation of national health programmes;

5. To effect proper sanitation measures in the community, e.g. disposal of infected garbage, chlorination of drinking water;

6. To identify and institute control measures for epidemics including its proper data collecting and reporting ;

XII. Forensic Medicine Including Toxicology

1. To be able to carryon proper medicolegal examination and documentation of injury and age reports.

2. To be able to conduct examination for sexual offences and intoxications;

3. To be able to identify important post-mortem findings in common un-natural deaths.

XIII. Management of Emergencies:

1. To manage acute anaphylactic shock;

2. To manage peripheral vascular failure and shock;

3. To manage acute pulmonary oedema and LVF;

4. Emergency management of drowning, poisoning and seizures;

5. Emergency management of bronchial asthma and status asthmaticus;

6. Emergency management of hyperpyrexia;

7. Emergency management of comatose patient regarding airways, positioning prevention of aspiration and injuries

8. Assess and administer emergency management of burns;

PRESCRIBED TEACHING HOURS AND SUGGESTED MODEL TIME TABLES

Following minimum teaching hours are prescribed in various disciplines:

A. Pre-Clinical Subjects – (Phase-I-First and Second Semester.

Anatomy	650 Hrs
Physiology	480 Hrs
Biochemistry	240 Hrs
Community Medicine	60 Hrs

B. Para-Clinical Subjects – (Phase-II-5th to th Semester.

Pathology	300 Hrs
Pharmacology	300 Hrs
Microbiology	250 Hrs
Community Medicine	200 Hrs. (including 8 weeks postings of 3 hrs each.
Forensic Medicine	100 Hrs

Teaching of para-clinical subjects shall be 4 hrs. per day in 3rd Semester and 3 hrs. per day in 4th and 5th Semesters (See attached Time Table).

C. Clinical Subjects (Phase II and III-3rd to 9th Semesters.

1. Clinical postings as per chart attached.

2. Theory lectures, demonstrations and Seminars etc. in addition to clinical postings as under. The clinical lectures to be held from 4th Semester onwards (See attached Time Table).

Gen.Medicine	300 hours	Gen.Surgery	300 hours
Paediatrics	100 hours	Orthopedics	100 hours
T.B. and Chest	20 hours	Ophthalmology	100 hours
Psychiatry	20 hours	E.N.T	70 hours
Skin and STD	30 hours	Radiology	20 hours
Community Medicine	50 hours	Dentistry	10 hours
Anaesthesia	20 hours	Obst&Gynae.	300 hours

Note:

This period of training is the minimum recommended. Adjustments wherever required subject to availability of time may be made.

This period of training does not include university examination period.

Extra time available may be devoted to other Sub-specialties.

During Semesters 3 to 9, following clinical postings for each student, of 3 hrs.duration is suggested for various departments after introductory course in Clinical Methods in Medicine and surgery of 2 weeks each for the whole class.**TABLE**

Total Subject	3rd Semester (Weeks)	4th Semester (Weeks)	5th Semester (Weeks)	6th Semester (Weeks)	7th Semester (Weeks)	8th Semester (Weeks)	9th Semester (Weeks)	Total Semester (Weeks)
General Medicine***	6	–	4	–	4	6	6	26
Paediatrics	–	2	–	2	2	4	–	10
Tuberculosis and chest Diseases	–	2	–	–	–	–	–	2
Skin and STD	–	2	–	2	–	2	–	6
Psychiatry	–	–	2	–	–	–	–	2
Radiology*	–	–	–	–	2	–	–	2
General Surgery****	6	–	4	–	4	6	6	26
Orthopaedics**	–	–	4	4	–	–	2	10
Ophthalmology	–	4	–	4	–	–	2	10
Ear Nose and Throat	–	4	–	4	–	–	–	8
Obstetrics***** and Gynaecology including Family Welfare Planning	2	4	4	–	4	4	6	24
Community Medicine	4	4	–	4	–	–	–	12
Casualty	–	–	–	2	–	–	–	–
Dentistry	–	–	–	–	2	–	–	2
Total (in weeks)	**18**	**22**	**18**	**22**	**18**	**22**	**22**	**142**

Clinical methods in Medicine and Surgery for whole class will be for 2 weeks each respectively at the start of 3rd semester.

* This posting includes training in Radiodiagnosis and Radiotherapy where existent.
** This posting includes exposure to Rehabilitation and Physiotherapy.
*** This posting includes exposure to laboratory medicine and infectious diseases.
**** This posting includes exposure to dressing and Anesthesia.
**** This includes maternity training and Family medicine and the 3rd semester posting shall be in Family Welfare Planning.