

## **MAHARASTRA UNIVERSITY OF HEALTH SCIENCES, NASHIK**

### **III M.B.B.S.**

### **MEDICINE**

**Introduction of “Palliative Care Medicine” Topic In 3<sup>rd</sup> MBBS (Part II) in  
General Medicine Syllabus**

(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 :

- (1) Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases;
- (2) Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interactions, indications and contra-indications;
- (3) Propose diagnostic and investigative procedures and ability to interpret them;
- (4) Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required;
- (5) Recognize geriatric disorders and their management.

(iii) **SKILLS** :

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

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

- (2) refer a patient to secondary and/or tertiary level of health care after having instituted primary care;
- (3) perform simple routine investigations like hemogram, stool, urine, sputum and biological fluid examinations;
- (4) assist the common bedside investigative procedures like pleural tap, lumbar puncture, bone marrow aspiration/ biopsy and liver biopsy.

A course of systematic instruction in the principles and practice of medicine, including medical disease of infancy;

- a. Lecture - demonstrations, seminars and conferences in clinical medicine during the 3 years shall run concurrently with other clinical subjects.;
- b. Instructions in comprehensive medical care;
- c. Instructions in applied anatomy and physiology and pathology throughout the period of clinical studies;
- d. Instructions in dietetics, nutrition and principles of nursing Medical and in simple ward procedure e.g. should be imparted during clinical concurrently.

iv) **Attitude :**

- a. The teaching and training in clinical medicine must aim at developing the attitude in students to apply the knowledge & skills he/she acquires for benefit and welfare of the patients.
- b. It is necessary to develop in students a sense of responsibility towards holistic patient care & prognostic outcomes.
- c. Students should develop behavioural skills and humanitarian approach while communicating with patients, as individuals, relatives, society at large & the co- professionals.

**Curriculum for Theory Lecture series & Tutorials and LCD for General Medicine including Psychiatry, Tb. & Dermatology**

TERM	DAY	TIME	LECTURES	TOPIC
4 <sup>th</sup>	MON	8-9	20	Introduction to Medicine
5 <sup>th</sup>	MON	8-9	15	Infectious Diseases/Tropical diseases
	FRI	8-9	15	Cardiovascular System
6 <sup>th</sup>	TUE	12-1	20	GIT, Liver, Pan.
	THU	8-9	20	Chest + Miscellaneous
	MON	8-9	20	TB
	TUE	8-9	20	Psychiatry
	SAT	8-9	15	Skin
7 <sup>th</sup>	FRI	8-9	15	Neurology
	THU	12-1	15	Haematology/Haemato-oncology
	FRI	2-4	30	Tutorials
	MON	2-3	20	Skin / STD
8 <sup>th</sup>	TUE	8-9	20	Endo + Misc + Genetics ( 3 Lectures.)
	THU	8-9	20	Nephro. +Clinical Nutrition
	TUE	2-4	40	Tutorial Medicine, Skin, Tb, Psychiatry,

	WED	2-4	40	Tutorial
9 <sup>th</sup>	TUE	12-1	15	LCD Medicine (10 ) Skin 1 Psychiatry (1)
	MON	2-4	30	Tb(1)
				LCD Medicine (7)

The above timetable is general outline to guide the planning of curriculum at college level. However, flexibility may be exercised to the extent that there may be minor re-scheduling of course contents day-wise or term-wise. It must be ascertained that the course contents are covered fully and total hours allotted for the subjects are effectively implemented.

Note :- These are suggested time tables. Adjustments where required, depending upon the availability of time and facility, be made.

### **SYLLABUS**

(General Instruction: 1) **The Lectures** Stated below shall cover knowledge about applied aspects of basic & allied sciences, practical approaches in the management of patients in the outdoor & indoor settings as well as their management in the community. Special emphasis shall be placed on preventive aspects, National Health Programs & dietetics & nutrition.)

2) **During practical teaching & training in wards**, OPD & field works proper emphasis should be given to common health problems in addition to other diseases. Emphasis should be given to learning of tacit knowledge & skills in diagnosis & interpretation of finding & Lab. data.

### **INTRODUCTION TO MEDICINE : 4 TH SEMESER**

Lect.01. : History of Medicine.

Lect.2/3. : Concept & objectives of history taking. Diagnosis, Provisional Diagnosis, Differential diagnosis.

Lect.04. : Symptomatology of Cardiovascular Diseases.

Lect.05. : Symptomatology of Respiratory diseases.

Lect.06. : Symptomatology in Nervous system.

Lect.07. : Symptomatology in Gastrointestinal and Hepatobiliary diseases.

Lect.08. : Approach towards a patient with Fever / Oedema.

Lect.09. : Approach towards a patient with anaemia / jaundice.

Lect.10. : Approach towards a patient with Lymphadenopathy.

Lect.11. : Investigations ( Non- Invasive )

X-rays, USG

C.T. ./ M.R.I. Scan

Secretions examinations

Peripheral smear



Lect.12.: Investigations ( Invasive )

Bone marrow

F.N.A.C.

Liver biopsy

Lymph node biopsy

Endoscopies

Lumber puncture.

Lect.13/14.: Review of common diseases in India.

Lect.15/16,: Revision.

Lect.17.: Examination.

Lect.18/20: Buffer.

### **INFECTIOUS DISEASES : 5 TH SEMESTER**

Lect.01:Introduction.

Infections – types, Modes of Infection transmission, Incubation period

Host defenses, Immunity & Immunization & Management including

Prevention Lect.02 :

Viral hepatitis. Lect.3/4/5:

Tetanus/ Diphtheria Lect.6/7:

Malaria

Lect.08: Rabies Lect.09:

Typhoid fever

Lect.10/11: Gastroenteritis

Lect.12: Plague / Dengue

Lect.13/14: ( HIV ) Infection & AIDs.

Lect.15.: Examination.

Note :- The course contents in above topics should also cover applied aspects in basic sciences like Anatomy, Physiology, Bio-Chemistry, Micro- Biology, Pharmacology, Pathology, FMT while giving training on Clinical features, investigations, Diagnosis, D/D treatment & prevention.

## **CARDIOVASCULAR SYSTEM : 5 TH SEMESTER**

Lect.01 : Introduction

Functions / anatomy / physiology and its applications  
Various terminologies used

Lect.2/3: Methods of evaluation

Non - invasive  
Invasive

Lect.04 : Arrhythmias

Concept & Classification  
Presentation Diagnosis  
Pharmacotherapy in short

Lect.05: Cardiac arrest.

Lect.06: C.C.F.

Types  
Presentations  
Pathophysiology  
Management

Lect.07: C.H.D.

Aetiology and classification  
CHD in adults & its importance

Lect.08: Rheumatic fever

Lect.09: Presentation and haemodynamics of various Valvular lesions including investigations, Diagnosis, D/D treatment & Prevention.

Lect.10: Infective endocarditis

Lect.11/12: C.A.D, (Coronary artery disease)

Lect.13: Pericardial diseases and cardiomyopathy

Lect.14: Hypertension

Lect.15: Examination.

**GASTROENTEROLOGY, HEPATOBILIARY SYSTEM & PANCREAS :**  
**6 TH SEMESTER**

Lect.01: Introduction to GIT

- Oral Cavity
- Ulcers
- Bleeding
- Pigmentation
- Oral manifestation of systemic diseases

Lect.2/3: Oesophagus

- Inflammation, Dysphagia

Lect.4/5: Stomach Peptic

- ulcers
- Aetiopathogenesis
- Clinical features
- Investigations
- D/D and management
- Acute and Chronic gastritis

Lect.6/7. Small and large intestine diseases

- Secretions & functions
- MAL Mal –absorption-syndrome
- Tuberculosis of Abdomen

Lect.08: Ulcerative colitis & Crohn's disease

Lect.09: Liver.

- Introduction
- LFT & their interpretation

Lect.10/11: Hepatitis - Acute & Chronic

Lect.12/13: Cirrhosis of liver

Lect.14: Gall bladder diseases

Lect. 15/16: Pancreas

- Functions
- Investigations
- Acute and Chronic pancreatitis
- Manifestation and D/D & treatment.

Lect.17/18: Misc. & Revision.

Lect.19: Examination.

## **RESPIRATORY SYSTEM : 6 TH SEMESTER**

Lect.01: Applied Anatomy and physiology of R.S.

Lect.02: P.F.T. ( Pulmonary Function Testing)

Lect.03: Resp. Infection- Pneumonias.

Lect.04: Chronic bronchitis and emphysema

Lect.5/6: Bronchiectasis and lung abscess.

Lect.07: Bronchial asthma

Lect.08: Malignancies

Lect.09: Mediastinum and its disorders.

Lect.10: Pleural disease - Emphasis on pneumothorax

Lect.11: Pleural effusion.

Lect.12: Occupational lung disease. Its concept and short review

Lect.13: Revision - Fungal & Parasitic diseases

Lect. 14:Respiratory emergencies & Introduction to mechanical ventilators

## **Collagen Vascular Disorders**

Lect.1: Allergy - Concept & hypersensitivity, Autoimmunity

Lect.2: Collagen disease.

Lect.3: Rheumatoid arthritis

Lect.4: Sero negative arthritis

Lect.5: Revision HIV , Alcohol related disease

Lect.6: Examination



## **TUBERCULOSIS : 6 TH SEMESTER**

Lect.01: History and introduction

Lect.2/3: Pathogenesis and pathology

Lect.04: Role of host related factors

Lect.05: Microbiology of AFB

Lect.06: Clinical features of pulmonary tuberculosis and its investigations

Lect.07: Anti – Tubercular drugs  
Pharmacology & Schedules of treatment.

Lect.8/9: Resistant tuberculosis  
DOTS  
Prophylaxis - Drugs /BCG/ Tuberculin test.  
HIV & TB.

Lect.10: Extra - pulmonary tuberculosis  
Plural effusion  
Empyema  
Others

Lect.11/12: Revision

Lect.13: Examination

## **NEUROLOGY: 7 TH SEMESTERS**

Lect.01: Introduction  
Applied anatomy & physiology  
History taking in neurology

Lect.02: Investigations

Lect.3/4: CVD ( Cerebro Vasular Disease)  
Types & its differential diagnosis  
Predisposing factors  
Diagnosis and management

Lect.05: S.O.L. (Space Occupying Lesions)

Lect.06: Encephalitis and meningitis

Lect.07: Epilepsy

Lect.08: Cerebellar syndrome

Lect.09: Parkinsonism

Lect.10: Peripheral neuropathy

Lect.11: Muscle disorders in brief

Lect.12/13: Spinal cord disorders

Lect.14: CSF

Formation and absorption

Status in various disorders

Lect.15: Examination.

### **HEMATOLOGY: 7 TH SEMESTER**

Lect.01: Introduction

Cell line of hemopoiesis

Stimulating factors

Physiology and Anatomy of RBCs.

Lect.02: Anemias

Introduction

Classification

Symptoms & signs in general

Basic investigations & its interpretation

Lect.03: Microcytic hypochromic anaemias

Fe Kinetics

C/F, investigations of Fe deficiency.

Treatment of Fe deficiency.

D/D - Sideroblastic / thalassemic.

Lect. 04: Macrocytic anaemias

Kinetics of B-12 and Folic acid

C/F, investigations and management of B-12 / FA deficiency.

Lect.05: Anaemias (continued)

Brief of Chronic infections and inflammation

Hemolytic anaemias

Lect.06: Hemoglobinopathies

Lect.07: Hypoplastic / Aplastic anemia

Definition

Classification

Diagnosis and management

Lect.08: Introduction to WBCs.

Agranulocytosis - Aetiology & its significance

Leukemias ( AML, ALL, CML, CLL)

Lect.09: Management of leukemia

Lect.10: Lymphomas

Hodgkin's disease / NHL (Non-Hodgkin's lymphoma)

Lect.11: Approach to a patient with bleeding disorders

Recognition

Investigations

Physiology of Platelets

Therapy

Lect.12: Blood groups & Blood Transfusion & Component Therapy

Lect.13-14: Revision

Lect. 15: Examination.

### **ENDOCRINOLOGY : 8 TH SEMESTER**

Lect. 01: Introduction - Hormones

Concept

Types

Action

Endocrine system

General

Control

Lect.2/3: Pituitary

Anatomy

Regulation

Disorders of Ant. Pituitary

Acromegaly

A.G. Syndrome

Disorders of Post. Pituitary

Hypopituitarism

Lect.4/5: Thyroid

Anatomy

Regulation  
Goiter  
Hypothyroid state & hyperthyroid state  
Classifications  
Management

Lect.6/7: Adrenal gland

Anatomy  
Regulation  
Addison's & Cushing syndrome  
Recognition  
Investigations  
Management  
Pheochromocytoma

Lect.08: Vit. D. Metabolism.

Ca. Metabolism and its relations to parathyroid  
Diagnosis & management of related disorders.

Lect.9/10: Diabetes Mellitus

Lect.11: FSH < H. Oestrogens Progesterone's

Significance  
Disorders  
Its recognition and diagnosis  
Management

Lect.12: Multiple endocrine-syndrome and paraneoplastic syndrome Overview.  
Diabetes insipidus.

### **Miscellaneous**

Lect.13/14 : Poisoning

Suicidal / Homicidal / Accidental  
Chemical / Biological / Corrosives / Drugs  
Concepts of management  
Optimum Barbiturate  
DDT  
Organophosphorus

Lect.15: Hyperpyrexia and Heat exhaustion

Aetiology

Pathophysiology

C / F. Types

Management

Preventive measures

Lect.16 : Electrical injury

Types

Manifestations

Management

Lightening

Lect.17: Shock

Types

Pathophysiology / Complications

Management

Lect.18/19: Revision

Lect.20: Examination

## **NEPHROLOGY, NUTRITION : 8 TH SEMESTER**

### **NEPHROLOGY :**

Lect.01: Anatomy & Physiology of Urinary system

Lect.02: R.F.T. ( Renal Function Tests)

Lect.03: Acute Glomerulonephropathy

Lect.04: Chronic Glomerulonephropathy

Lect.05: Infections of urinary system.

Lect.06: Nephrotic syndrome

Lect.07: Approach towards common problem

- i. Proteinuria
- ii. Hematuria
- iii. Renal colics

Lect.08: Acute & Chronic renal failure

Lect.09: Dialysis - Diet - Drugs. In renal failure

Lect.10:Revision

Lect.11: Examination

### **Genetics (3 lectures )**

Lect.1 : Introduction

Lect.2 : Common genetic disorders

Lect.3 : Application of Genetic Engineering in Medicine

### **NUTRITION :**

Lect.11: Concepts of carbohydrate, proteins, fats, vitamins and minerals. Balanced diet.

Lect.12: Protein energy malnutrition.

Lect.13/14: Vitamin deficiency state  
Scurvy / Beriberi / Pellagra / Vit.A

Lect.15: Obesity / Asthenia  
Diagnosis  
“Complications and management

Lect.16: Revision

Lect.17: Examination.

[Introduction of “ Brain Death and Organ Donation” topic in subjects of Physiology , Preventive & Social Medicine, Psychiatry, Medicine & Surgery](#)

### **Recommended Books:**

1. Hutchinson’s Clinical Methods by Hunter and Bomford,
2. The Principles and practise of Medicine - Sir Stanley Davidson
3. Text book of Medical Treatment - Dunlop and Alstead.
4. Savill’s system of Clinical Medicine - E. C. Warner.
5. Principles of internal Medicine - Harrison.
6. API Text Book of Medicine.
7. **Reference Book (Clinical Medicine) : "Clinical Examination in Medicine": Author: Dr. A. P. Jain**
8. **“Manual of Clinical Practical Medicine” : 1) Dr. G.S.Sainani  
2) Dr. V.R. Joshi  
3) Dr. Rajesh G. Sainani**

## ***SKIN***

### ***DERMATOLOGY / STD/ LEPROSY***

#### **Goals :**

The aim of teaching the Under graduate students in Dermatology, S.T.D. and Leprosy is to impart such knowledge and skills that may enable him to diagnose and treat common ailments and to refer rare diseases or complications and unusual manifestations of common diseases to the specialist.

#### **OBJECTIVES :**

##### **Knowledge :**

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

1. Demonstrate sound knowledge of common diseases, their clinical manifestations including emergent situations and of investigative procedures to confirm their diagnosis.
2. Demonstrate comparative knowledge of various modes of topical therapy.
3. Demonstrate the mode of action of commonly used drugs, their doses, side effects / toxicity, indications and contraindication & interactions.
4. Describe commonly used modes of management including the medical & Surgical procedures available for the treatment of various diseases and to offer a comparative plan of management for a given disorder.

##### **Skills :**

The student shall be able to

1. Interview the patient, elicit relevant and correct information and describe the history in a chronological order :
2. conduct clinical examination, elicit and interpret physical findings and diagnose common disorders and emergencies :
3. 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 :
4. take a skin biopsy for diagnostic purposes ;
5. Manage common diseases recognizing the need for referral for specialized care, in case of inappropriateness of therapeutic response.

Structures and functions of Skin and its appendages

Pruritus

Infections (Bacterial , Chlamidia, Mycoplasma, Fungal & Viral )

Infestations ( Ecto and Endoparasites)

Nutritional disorders

Allergic Disorders

Leprosy

STD

HIV & Skin Papulesquamous

disorders Collagen Vascular

Disorders

Pigmentary disorder

Drug reactions.

## Chest

### **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:

- 1) demonstrate sound knowledge of common chest diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis"
- 2) demonstrate comprehensive knowledge of various modes of therapy used in treatment of respiratory diseases;



- 3) describe the mode of action of commonly used drugs, their doses, side-effects/toxicity, indications and contra-indications and interactions.;
- 4) 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 :**

The student shall be able to :

- 1) interview the patient, elicit relevant and correct information and describe the history in chronological order;
- 2) conduct clinical examination, elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies;
- 3) 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;
- 4) interpret and manage various blood gases and PH abnormalities in various respiratory diseases.
- 5) Manage common diseases recognizing need for referral for specialized care, in case of inappropriateness of therapeutic response;
- 6) 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

Lect. 01 : History and introduction.

Lect. 2/3: Pathogenesis and pathology

Lect. 04: Role of host related factors.

Lect. 05: Microbiology of AFB

Lect. 06: Clinical features of pulmonary tuberculosis

Lect. 07: Anti-tuberculous drugs  
-Pharmacology & schedules of drug therapy

Lect. 8/9: Resistant tuberculosis  
DOTS  
Prophylaxis - Drugs / BCG / Tuberculin test.  
HIV & TB

Lect 10 Extra - Pulmonary tuberculosis  
Pleural Effusion  
Others.

Lect 11/ 12: Revision

Lect. 13: Examination.

### **Respiratory System :**

1. Applied anatomy & Physiology of R.S.
2. Lung function tests
3. Respiratory infections, pneumonias, fungus,
4. Bronchiectasis & lung Abscess.
5. Bronchial Asthma.
6. Lung & Pleural Malignancies.
7. Mediastinum & its disorders.
8. Pleural Diseases
9. Occupational Lung Disease
10. Respiratory emergencies.

### **Lecture cum Demos ( Resp system)**

1. Lung function test and blood gas Analysis and Resp. alkalosis & Acidosis.
2. Chest bronchios emphysema
3. Suppurative lung diseases
4. Bronchogenic carcinoma & other malignancies with Mediastinal obstruction
5. Pleural disease - pneumothorax, pyopneumothorax, Pleural

L.C.D. In T.B.

1. Haemoptysis
2. Drug resistance
3. TB & HIV

# Psychiatry

## (i) **GOAL** :

The aim of teaching of 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 manifestation 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 :

1. comprehensive nature and development of different aspects of normal human behaviour like learning, memory, motivation, personality and intelligence;
2. recognize differences between normal and abnormal behaviour;
3. classify psychiatric disorders;
4. 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, psychophysiological disorders, drug and alcohol dependence, psychiatric disorders of childhood and adolescence;
5. describe rational use of different modes of therapy in psychiatric disorders.

### (b) **SKILLS** :

The Student shall be able to :

- 1) interview the patient and understand different methods of communications in patient-doctor relationship;
- 2) Elicit detailed psychiatric case history and conduct clinical examination for assessment of mental status;
- 3) Define, elicit and interpret psycho-pathological symptoms and signs;
- 4) Diagnose and manage common psychiatric disorders;
- 5) 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 re-habilitative services for the care of patients both in the family and community and to refer advanced cases for a specialized Psychiatry / Mental Hospital. Training should be integrated with the departments of Medicine, Neuro-Anatomy, Behavioral and Forensic Medicine.

**4<sup>th</sup> or 5<sup>th</sup> semester 5 lectures**

2. Motivation (including) frustration, conflicts etc.) Emotion (including mind-body relationship)
3. Learning (different types) memory ( Types of memory, cause of forgetting etc.)
4. Intelligence, emotional Quotient including M.R. and sifted child.
5. Personality-Different types with mental mechanisms
6. Difference between normal and abnormal behaviour. Doctor-Patient relationship and communication skills

**In 8<sup>th</sup> & 9<sup>th</sup> Semester remaining 15 lectures.**

1. Psychiatric classification. Difference between functional and organic psychosis. Difference between psychosis and neurosis.
2. Schizophrenia including drugs and rehabilitation.
3. Affective disorders including pharmacotherapy
4. Affective disorders including non-pharmacotherapy treatment.
5. Anxiety disorders-Generalised anxiety, disorders, panic disorders.
6. O.K.D. and Phobias.
7. Somatoform disorders.
8. Alcohol dependence
9. Psycho-Physiological disorders.
10. Scholastic problems.
11. Behavioural disorders.
12. Sexual disorders.
13. Psychiatric emergencies including suicide and organic brain disorders.
14. Psychotherapies including behaviour therapy.

<p><u>Introduction of “ Brain Death and Organ Donation” topic in subjects of Physiology , Preventive &amp; Social Medicine, Psychiatry, Medicine &amp; Surgery</u></p>
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## **Paediatrics**

### **Paediatric 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 including scope for 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:

- (1) Describe the normal growth and development during foetal life, neonatal period, childhood and adolescence and outline deviations thereof;
- (2) Describe the common paediatric disorders and emergencies in terms of Epidemiology, aetiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation;
- (3) Age related requirements of calories, nutrients, fluids, drugs etc, in health and disease;
- (4) Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse;
- (5) Outline national Programmes relating to child health including immunization Programmes.

(b) **SKILLS** :

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

- (2) 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.
- (3) 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 :
- (4) Conduct diagnostic procedures such as a lumbar puncture, liver and kidney biopsy, bone marrow aspiration, pleural tap and ascitic tap;
- (5) Distinguish between normal newborn babies and those requiring special care and institute early care of all newborn babies including care of preterm and low birth weight babies, provide correct guidance and counseling in breast feeding ;
- (6) 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 team in an integrated form with other disciplines, e.g. Anatomy, Physiology, Forensic Medicine, Community Medicine and Physical Medicine and Rehabilitation.

## **LIST OF LECTURE/ SEMINARS**

### **Lectures : 3<sup>rd</sup> / 4<sup>th</sup> Semester :**

1. Introduction of Paediatrics.
2. History taking in children.
3. Examination of Children.
4. Normal Growth
5. Normal Development.
6. Introduction to newborn and normal newborn baby.
7. Temperature regulation in newborn.
8. Breast feeding and lactation management.
9. Infant and child feeding ( include complimentary feeding)
10. Normal fluid and electrolyte balance in children.
11. Immunization.

## **Lecturers : 7<sup>th</sup> / 8<sup>th</sup> / 9<sup>th</sup> Semester :**

1. Birth Asphyxia
2. Low Birth Weight Babies.
3. Neonatal Respiratory Distress.
4. Jaundice in newborn.
5. Neonatal Infections.
6. Neonatal convulsions.
7. PEM and its management.
8. Vitamin and micronutrient deficiencies.
9. Nutritional anaemia in infancy and childhood.
10. Acute diarrhoea.
11. Hypothyroidism in children.
12. Congestive heart failure - diagnosis and management.
13. Congenital heart disease.
14. Rheumatic heart disease.
15. Hypertension in children.
16. Acute respiratory infections.
17. Bronchial asthma.
18. Nephrotic syndrome
19. Acute glomerulonephritis and hematuria
20. Abdominal pain in children.
21. Chronic liver disease including ICC.
22. Haemolytic anaemia including thalassemia.
23. Leukaemias.
24. Bleeding and coagulation disorders.
25. Seizure disorders.
26. Cerebral Palsy.
27. Common exanthematous illness.
28. Childhood tuberculosis

## **Other Lectures to be covered :**

1. Fluid and electrolyte balance -pathophysiology and principles of Management.
2. Acid-base disturbances - pathophysiology and principles of management.
3. Adolescent growth and disorders of puberty.
4. Congenital heart disease.
5. Acute respiratory infections, Measles, Mumps, Chicken pox
6. Other childhood malignancies.
7. Coagulation disorders - Haemophilia
8. Mental retardation.
9. Approach to a handicapped child.
10. Acute flaccid paralysis.
11. Behaviour disorders.
12. Meningitis.
13. Diphtheria, Pertussis and Tetanus.
14. Childhood tuberculosis.
15. HIV infection.
16. Malaria.
17. Neurocysticercosis.
18. Enteric fever.

19. Immunization.
20. Paediatric prescribing.
21. Common childhood poisonings.

### **Integrated Seminar Topics :**

Convulsions

Coma

PUO

Jaundice

Portal hypertension

Respiratory failure

Shock

Rheumatic Heart Disease

Hypertension

Diabetes mellitus

Hypothyroidism

Anemia

Bleeding

Renal failure

Tuberculosis

Malaria

HIV infection

Neurocysticercosis

Perinatal asphyxia ( with obstetrics )

Intrauterine growth retardation ( with obstetrics)

Introduction of “ Integrated Management of Neonatal And Childhood Illness”

Topic in MBBS Syllabus



## **Preventive and Social Medicine / Community Medicine (PSM)**

- A. The teaching of Social & Preventive Medicine shall place throughout the teaching period.
- B. Field experience in rural health is included in pre-clinical as well as during clinical period
- C. During the students attendance at various departments which is now required under medicine and surgery, such as infectious diseases. T.B. Leprosy, V.D. etc. emphasis shall be laid as much on the preventive as on the clinical and Therapeutic aspects of these diseases.
- D. In addition to the teaching undertaken by the department of Social & Preventive Medicine, a joint programme with other departments is essential in order to give the students a comprehensive picture of man, his health and illness.
- E. Stress shall be laid on national programmes, including those of control of communicable diseases and family planning and health education.
- F. An epidemiological units as an integrate part of every hospital in order to achieve a comprehensive study disease by the students should be established.
- G. The objective of the internship shall be clearly defined and that a proper training programme is oriented for this period. Objectives, and the methods by which the internship could be made into a satisfying and fruitful experience. Sharpening and for planning in this phase of education shall be done.
- H. As regards the qualifications of the teachers it is highly important that All teachers in Social and A preventive Medicine should have as far as possible had adequate administrative experience in addition to the teaching experience. They should also be encouraged to acquire skills in clinical subject specially related to community medicine.
- I. Practical Skills : Due stress shall be laid on the students acquiring practical skill in the following procedures.

### **Community Medicine including Humanities (Preventive and Social Medicine)**

(Phase I,II and Part 1<sup>st</sup> of Phase III M.B.B.S.)

#### **GOALS :**

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.

## **OBJECTIVES :**

### **Knowledge :**

At the end of the course the student shall be able

- Explain the principles of sociology including demographic population dynamics.
- Identify social factors related to health, disease and disability in the context of urban and rural societies.
- Appreciate the impact of urbanization on health and disease.
- Observe and interpret the dynamic of community behaviours.
- Describe the elements of normal psychology and social psychology.
- Observe the principles of practice of medicine in hospital and community settings.
- Describe the health care delivery systems including rehabilitation of the disabled in the country.
- Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control.
- List the epidemiological methods and techniques.
- Outline the demographic pattern of the country and appreciate the roles of the individuals, family, community and socio-cultural milieu in health and disease.
- Describe the health information systems.
- Enunciate the principles and components of primary health care and the national health policies to achieve the goal of "Health for all".
- Identify the environmental and occupational hazards and their control.
- Describe the importance of water and sanitation in human health.
- To understand the principles of health economics, health administration, health education in relation to community.

### **Skills :-**

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

- The principles and practice of medicine in hospital and community settings and familiarization with elementary practices.
- Use the Art of communication with patients including history taking and medico social work.
- Use epidemiology as a scientific tool to make rational decisions relevant to community and individual patient intervention.
- Collect, analyse, interpret and present simple community and hospital base data.
- 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-culture beliefs.
- Diagnose and manage common nutritional problems at the individual and community level.
- Plan, implement and evaluate a health education programme with skill to use simple audio-visual aids.
- Interact with other members of the health care team and participate in the organization of health care services and implementation of national health programmes.

### **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.

## Course Content :

Total hours of teaching in community medicine and Humanities are 376. The distribution of them shall be as follows.

Phase	Semester	Theory	Practical Hours
I	I & II	30	30
II	III & IV	68	132
III Part I <sup>st</sup>	VI & VII	50	66

## Community Medicine (P.S.M.)

### List of theory lectures

#### Phase I (1<sup>st</sup> and 2<sup>nd</sup> semester) 30 Hours

1. Introduction – Evolution of Community Medicine.
2. Health – Definition, spectrum of health and factors affecting – indicators of health.
3. Health Problem of World – Urban and Rural – Indian Health.
4. Health Care Delivery system in India – Urban and Rural.
5. Demography, Demographic cycle, Population trends – World and India.
6. Fertility and factors affecting it.
7. Family welfare and Population control.
8. Medical ethics and Doctor – patient relationship – Consumer Protection Act.
9. Sociology and Social factors effecting health.
10. Social Psychology – introduction, Group Behaviour, Motivation Personality.
11. Economics and health.
12. Health Education and Communication.
13. Hospital Management.
14. Nutrition and Health.
  - ☐ Constituents of food.
  - ☐ Food and food groups.
  - ☐ Diet planning and recommended dietary allowances.
  - ☐ Nutritional diseases.
  - ☐ Iodine deficiency disorders.
  - ☐ Diseases due to vitamin and mineral imbalance
  - ☐ Toxins in the food.
  - ☐ Assessment of Nutritional status.
  - ☐ Examination

#### Phase II – (3<sup>rd</sup> and 4<sup>th</sup> Semester) 68 Hours

##### General Epidemiology

- The concepts of disease.
- Natural history of disease.
- Epidemiological triad.
- Dynamics of diseases transmission.

- Concept of disease control.

### Epidemiology

- ☐ **Definition, types, measurements in epidemiology, epidemiological studies, and clinical trial, investigation of an epidemic.**
- ☐ **Uses of epidemiology.**
- ☐ **Screening for disease.**
- ☐ **Disinfection, sterilization and control of Hospital acquired infections.**
- ☐ **Immunity.**

### Environmental health

- ☐ **Introduction to environment health.**
  - Water in relation to health and disease.
  - Air pollution and ecological balance.
  - Housing and health.
  - Effects of radiation on human health ( Ionizing, Non-ionizing & Nuclear warfare)
  - Effects of Noise on human health.
  - Meteorological environment.
  - Solid waste disposal.
  - Disposal of hospital waste.
  - Liquid waste disposal

### **Medical entomology**

Arthropods of medical importance and their control.

### **Biostatistics (Theory and Practical)**

Introduction and uses.

Data- Types, Collection and Presentation.

Centering constants.

Measures of Variation.

Normal distribution.

Sampling methods and Sampling variability.

### **Tests of significance.**

- SE of difference between two means.
- SE of difference between two proportions
- $X^2$  test. ( Chi-square)
- Students „t“ test
  - Paired .
  - Unpaired.
- Statistical fallacies.

### **Computers in Medicine**

There use at all the stages to be demonstrated. The students should use computers in analysis and presentation of data

### **Epidemiology of communicable diseases.**

- ☐ Air borne infections.
- ☐ Exanthematous fevers.
- ☐ Chicken pox, Rubella, and Measles
- ☐ Factors responsible to eradicate small pox.
- ☐ **Influenza and ARI.**
- ☐ Diphtheria and Pertussis

- ☐ Tuberculosis.
- ☐ Faeco-oral infections.
- Poliomyelitis.
- Hepatitis.
- Enteric Fever and Cholera
- Bacillary and Amoebic dysentery.
- ☐ Soil transmitted Helminths.
- ☐ Tetanus
- ☐ Rabies and other Viral Zoonotic disease.
- ☐ Leprosy.
- ☐ Leprosy.
- ☐ Malaria
- ☐ Filariasis.
- ☐ Arthropod borne viral diseases.
- ☐ Sexually transmitted diseases and their control.
- ☐ A.I.D.S.

*Examinations at the end of 3<sup>rd</sup> and 4<sup>th</sup> semester.*

**(Phase III (6<sup>th</sup> and 7<sup>th</sup> Semester)**

**50 hrs.**

(Teaching in 7<sup>th</sup> semester includes tutorials also.)

- ☐ Community development programmes and multisectoral development.
- ☐ Comprehensive medical care and Primary health care.
- ☐ National Health Policy.
- ☐ Maternal and Child Health care.
- ☐ Epidemiology of Non-communicable diseases.
- ☐ Occupational health.
- ☐ Problems of adolescence including Drug dependence.
- ☐ Geriatrics
- ☐ Vital statistics – sources and uses, Census, Fertility statistics.
- ☐ Management information system.
- ☐ Mental health.
- ☐ Genetics in public health.
- ☐ Health planning and management.
- ☐ National Health Programmes.
- ☐ International health and Voluntary Health Agencies.Tutorials.

Examination at the end of 6<sup>th</sup> and 7<sup>th</sup> semester.

### ***Practicals***

**Phase I (1<sup>st</sup> And 2<sup>nd</sup> semester)**

-

**30 hours.**

#### **Field visit-**

Every Medical College should have adequate transport facilities to take medical undergraduate for field visits. In the phase I total 15 visits, each of 2 hours duration or total 10 visits – each of 3 hours duration (depending on distances ) are to be planned by the departments of community medicine. The broad outline of place for educational field visits is given below.

- ☐ Hospital visits (O.P.D., Casualty, Immunization clinic, different wards, Kitchen, FW Centre, PPP, Blood Bank, Sterilization section, Infectious disease ward, Minor operation theatre, etc.)
- ☐ Rural Health Training Centre.
- ☐ Primary Health Centre.
- ☐ Urban Health Centre.
- ☐ District Health Office (DHO).
- ☐ District Training Team (DTT)/IEC Bureau.
- ☐ District Tuberculosis Centre.
- ☐ Public Health Laboratory.
- ☐ District Malaria Office.
- ☐ Remand Home.
- ☐ Rehabilitation Centre.

**III<sup>rd</sup> Semester, I<sup>st</sup> Clinical Posting** - **66 hours.**

Lecture – Cum – Demonstration, at appropriate places

SN	Topic	Demonstration
1	Visit to Urban / Rural health Training Centre.	Functions of UHC/ RHTC Manpower & Duty arrangements
2	Immunization Programme	I (demonstration)
3	Immunization Programme	II ( Cold Chain)
4	Care of ANC mother	Demonstration of Antenatal case
5	Care of Infant	Demonstration of case
6	Post-natal case of mother/child.	Demonstration of case
7	Contraceptive devices	Situation to be given and sex education.
8	Exclusive breast feeding	Visit to Baby Friendly Hospital
9	Weaning foods	Demonstration
10	Nutritional demonstration	Explain nutritive values of Indian foodstuff
11	Nutritional assessment	Demonstration
12	Anthropometric measurements	Demonstration
13	Nutritional deficiency disorders	With A/V aids or case, Road to Health Chart
14	Protein Energy Malnutrition	With A/V aids or case, ORS preparation
15	Diarrhoea as a community health problem	With A/V aids or case
16	ARI as a community health problem	With A/V aids or case
17	Elementary essential drugs	Visit to drug store, Inventory control
18	Examination	

**4<sup>th</sup> Semester 2<sup>nd</sup> Clinical Posting** - **66 hours.**

The board guidelines for planning programmes are as follows.

- 1) Posting for family care study - 6 days
  - ☐ Principle of clinical epidemiology
  - ☐ Morbidity Survey.
  - ☐ Data analysis and presentation.
- 2) Posting for School Health - 6 days
  - ☐ Health check-up of school children.
  - ☐ Data analysis and presentation.
  - ☐ Health education activities in the school by the students.
- 3) Visit to anganwadi and ICDS scheme block - 2 days
- 4) Visit to Home for aged and discussion - 2 days

- |    |   |   |         |
|----|---|---|---------|
| 5) | on geriatric health problems<br>Students' seminars on topics like | - | 5 days  |
|    | <input type="checkbox"/> Disaster management                      |   |         |
|    | <input type="checkbox"/> Road traffic accidents                   |   |         |
|    | <input type="checkbox"/> Population explosion etc.                |   |         |
| 6) | Examinations  | - | 3 days. |

### **Phase III (6<sup>th</sup> and 7<sup>th</sup> Semester)**

#### **3<sup>rd</sup> Clinical Posting -**

**66 hours.**

Posting : Clinical case presentation by students

1. Introduction to infectious diseases – history taking
  2. Exanthematous fever.
  3. Diarrhoea / Cholera / Dysentery.
  4. Tuberculosis
  5. Leprosy.
  6. Dog – bite case.
  7. Tetanus.
  8. PUO / Enteric fever / Malaria.
  9. S.T.D. / AIDS.
  10. Hepatitis
  11. Introduction to non- communicable diseases.
    - ☐ Rheumatic heart disease.
    - ☐ Cancer.
    - ☐ Obesity / diabetes.
- Examinations.

## MARKS OF INTERNAL ASSESSMENT :-

Theory –20 marks and practical 20 marks. The students must secure at least 50% , marks of the total marks fixed for internal assessment in the subject in order to clear the subject.

### I) Theory

1) 3 <sup>rd</sup> Semester	50 Marks	
2) 4 <sup>th</sup> Semester	50 Marks	
3) 6 <sup>th</sup> Semester	50 Marks	
Total	150 Marks	Converted it to out of 10 marks
4) Prelim exam. Theory Paper I	-	60 Marks
Paper II	-	60 Marks
Total		120 Marks,
		Convert it to out of 10 marks

Total Theory Internal Assessment marks will be 20.

### II) Practicals -

1) 1 <sup>st</sup> Clinical rotation exam. -	3 <sup>rd</sup> Semester -	50 Marks
2) 2 <sup>nd</sup> Clinical rotation exam. -	4 <sup>th</sup> Semester -	50 Marks
3) 3 <sup>rd</sup> Clinical rotation exam. -	6 <sup>th</sup> Semester -	50 Marks
Total		150 Marks
		Convert it to out of 10 marks
4) Prelim exam.	-	40 Marks
		10 Marks for Journals
Total		50 Marks
		Convert it to out of 10 marks

Total Practical Internal Assessment marks will be 20.

Introduction of “ Brain Death and Organ Donation” topic in subjects of Physiology , Preventive & Social Medicine, Psychiatry, Medicine & Surgery

Introduction Of “Bio-Medical Waste” topic in subject of Microbiology & Preventive & Social Medicine

In trodu ctio n of “ In tigrate d Man a ge me n t of Neo n a ta l And Ch ild ho od Illn e ss”

Topic in MBBS Syllabus



### **BOOKS RECOMMENDED.**

1. Text book of Community Medicine, Kulkarni A.P. and Baride J.P.
  2. Park's Textbook of Preventive and Social Medicine, Park
  3. Principles of Preventive and Social Medicine, K. Mahajan
  4. Textbook of Community Medicine, B. Shridhar Rao.
  5. Essentials of Community Medicine, Suresh Chandra.
  6. Textbook of Biostatistics, B. K. Mahajan
  7. Review in Community Medicine, V.R. Sheshu Babu.
  8. **Reference Book for Community Medicine: "Principles and practice of Biostatistics", Author: Dr. J.V. Dixit**
- FURTHER READINGS.**

Epidemiology and Management for health care for all P.V. Sathe and A.P. Sathe.

Essentials of Preventive Medicine O.P. Ghai and Piyush Gupta.

### **Record Book:**

- 1) The case records will have to be entered in a record book separately for General Medicine, for Paediatrics and for PSM.
- 2) In the record book of General Medicine, number of case records for Medicine shall be 12, for Skin & V.D. & Leprosy shall be 3, for Psychiatry shall be 2 and for Chest & TB shall be 3 cases.
- 3) The certificate of satisfactory completion of all Clinical postings will be entered based on similar certificates from all postings in all the above subjects.
- 4) In addition, details of the marks secured in the posting ending examination shall be entered on the second page on which the calculations of the internal assessments shall also be stated. Record book will not carry any marks but its satisfactory completion will be a prerequisite for appearing in examination.

*University Examinations in Medicine and Allied Subjects at a Glance*

### **MEDICINE :-**

Theory 2 papers of 60 marks each	= 120 marks
<b><u>Paper I</u></b> - General Medicine	
<b><u>Paper II</u></b> - General Medicine(Including Psychiatry, Dermatology, STD shall contain one question on basic sciences and allied subject.)	
Oral (viva) interpretation of X-Ray, ECG etc.	= 20 marks
Clinical (Bedside)	= 100 marks
Internal Assessment	= 60 marks
(Theory 30 Marks, Practical 30 Marks)	
Grand Total	= 300 marks

**PAEDIATRICS :-** (Including Neonatology)

Theory – One paper	= 40 marks
(Shall include one question on basic sciences & allied subjects)	
Oral (Viva)	= 10 marks
Clinical	= 30 marks
Internal Assessment	= 20 marks
(Theory 10 Marks, Practical 10 Marks )	
Grand Total	= 100 marks

## COMMUNITY MEDICINE :-

Theory 2 papers of 60 marks each	= 120 marks
Includes problems showing applied aspects of management at primary level including essential drugs, occupational (agro based) diseases rehabilitation and social aspects of community.	
Oral (Viva)	= 10 marks
Practical /Project evaluation	= 30 marks
Internal Assessment	= 40 marks
(Theory 20 Marks, Practical 20 Marks)	
Grand Total	= 200 marks

### Criteria of passing in various subjects at III MBBS Examination

SN	Subject	Theory Paper ./ Oral/ Practical / Internal Assessment		Maximum Marks in each of the subject	Minimum marks required to pass in each part of any subject		Minimum marks required to pass in each subject out of
01)	Community Medicine	a) Theory	Paper - I	60	60	65	<div>100</div> <div>200</div>
			Paper - II	60			
		b) Oral		10			
		c) Practical		30		15	
		d) Internal Assessme nt	Theory	20		20	
			Practical	20			
02)	General Medicine	a) Theory	Paper I	60	60	70	<div>150</div> <div>300</div>
			Paper II	60			
		b ) Oral		20			
		c) Practical		100		50	
		d) Internal Assessme nt	Theory	30	30		
			Practical	30			
03)	Paediatrics	a) Theory	Paper	40	20	25	<div>50</div> <div>100</div>
		b ) Oral		10			
		c) Practical		30	15		
		d) Internal Assessme nt	Theory	10	10		
			Practical	10			

**It is compulsory to obtain 50% marks in theory.**

It is mandatory to obtain 50% marks in theory+viva/oral.

( The Frequency & other details of Internal Assessment Examinations shall be as stated in circular dated 15/02/01 table no III & IV. of General

**Guidelines for U.G. teaching & training & Internal Assessment. Passing in Internal Assessment is prerequisite for eligibility to clear the subject. For passing in Internal Assessment student should secure minimum 30 out of 60 marks (theory & practical combined)**

**The Internal Assessment Examination shall consist of one clinical case paired with viva-voce for the periodical tests. However, the preliminary examination shall be carried out in a pattern similar to final University examination.**

## **University (Final) Exam : General Medicine**

Paper I (60 Marks) Time 3 hours.	Paper II (60 Marks) Time 3 hours.
<b>Section A – Marks 15</b> MCQs – 30 Items each of ½ mark Time 30 minutes (Shall cover whole course syllabus stated in Section B and C of Paper I below)	<b>Section A – Marks 15</b> MCQs 30 Items each of ½ mark Maximum time 30 minutes (Shall cover whole course syllabus stated in Section B and C of Paper I below)
<b>Section B – (Total Marks 25)</b> Two long questions Each of 8 marks & 3 Short Answer Questions of 3 marks each. (3 out of 5 SAQs by choice. On course contents of - Cardiovascular System, Gastrointestinal System, Hepatobiliary System & Pancreas, Haematology, Haematology & Genetics	<b>Section B – (Total Marks 25)</b> <i>Two long Questions each of 8 marks and</i> 3 short answer questions (out of 5 SAQs) on course contents of Neurology, Psychiatry, Dermatology, Veneroleprology & Collagen Disorders
<b>Section C – (Total Marks 20)</b> One long Question of 8 marks and 4 (out of six) SAQs of 3 marks each on course contents of Endocrinology, infectious diseases/Tropical Disease, Miscellaneous	<b>Section C – (Total Marks 20 )</b> One long question of 8 marks and 4 (out of six) SAQs of 3 marks each on course contents on Respiratory Diseases, Tuberculosis & Clinical Nutrition and Nephrology
The Max Time for Section B & C shall be of 2 hrs. + 30 minutes	The Max time for section B and C shall be of 2 hrs. and 30 minutes

MCQ Section A shall be given to the candidates in the beginning of examination. After 30 min. section A will be collected following which B & C shall be given. The time given Section B & C together is two and half hours. This applies to paper I & II.

( one of the short answer questions shall be on basic & allied sciences.)

### **Final University Exam : Practical Exam :**

Shall comprise of total 120 marks . with divisions as below :-

(A) Clinical Bed side :

One Long case - 50 Marks

Two short case - 25 Marks each

Total - 100 Marks

Long Case / The time for case taking  
for student is 45 min. & for examination  
is 10 min.

Short Case / The same for each short  
case is 10 min. & 5 min. respectively

(B) Oral Viva Voce and interpretation of investigation materials (like X-Rays, ECGs, etc. – 20 marks

Viva at Two Tables Each for 10 marks There should be even & balanced distribution of the course contents on these tables, between Internal & External examiners. This should include, specimens, instruments, microscopy & drugs on table no 1 & emergencies, radio-diagnostics, electrodiagnostic & Biochemical Lab. investigations on table no 2 as applicable to the course contents of final M.B.B.S. Exam.

**(C) The marks of Internal Assessment shall be sent to the University before the commencement of the Theory Examination.**

Note – In the event when I.A. could not be held on the specified time due to technical reasons or otherwise, then it should be held during the vacation.

IIIrd MBBS EXAM. PATTERN  
**FINAL MBBS EXAMINATION IN Paediatrics**

## **Evaluation**

### **Internal assessment: 20 ( Theory 10 +Practical 10)**

Plan of Internal assessment in Paediatrics ( as per university circular on 9th February 2001) Marks of Internal Assessment should be sent to University confidentially before the commencement of Theory examination.

- Passing in internal assessment will be pre-requisite for clearing the subject.  
Combined theory and practical of internal assessment will be considered for passing in internal assessment.

### ***Internal assessment in Theory -***

- 1 . Examinations during semesters : This will be carried out by conducting two theory examinations at the end of 6th and 8th semesters ( 50 marks each).  
Total of 100 marks to be converted into 5 marks.( A/5)
- 2 . Prelim examination : This shall be carried out during 9th semester.  
One theory papers of 40 marks as per university examination.  
Total of 40 marks to be converted into 5 marks. ( B/5)

Total marks of Internal assessment of Theory will be addition of A and B.

### **Internal assessment in Practical**

#### Examinations at end of Clinical postings:

- 1 There will be practical examination at the end of each clinical posting of Paediatrics.: 6<sup>th</sup> and 8th semester. Each examination will be of 50 marks.  
Total of 2 examinations – 100 marks , will be converted to 5 marks.( C/5)

#### 2. Prelim examination:

This will be conducted for 40 marks as per university examination pattern and marks will be converted to 5 (D/5).

Total marks of Internal assessment of Practical will be addition of C and D.

## Evaluation Methods - Theory, Practical and Viva

Pattern of theory examination including distribution of marks, questions and time

### Pattern of theory examination including distribution of marks

1. There shall be one theory paper , carrying 40 marks
2. The paper will have two sections, A and B
3. The paper will be of 2.5 hours duration.
4. Section A will be MCQ in each paper. Section B will have to be written in separate answer sheets.

**THEORY** : 40 marks      Duration Two and half hours      (2.5) hours

MCQ section A will be given to candidates at the beginning of the examination. After 30 minutes Section A will be collected. Section B of paper will then be handed over to candidates.

Section A :30 min. duration

28 MCQs - 1/2 mark each

14 marks

- Separate paper
- || Single based response
- || MCQ will cover whole syllabus

Section B : 2 hours duration

2 LAQ of 7 marks each

14 marks

3 /5 SAQ of 4 marks each

12 marks

**PRACTICAL (FINAL EXAMINATION): 40 Marks**

## One Long Case

20 Marks

Case Taking Time 45 Minutes

Examination Time 10 Minutes

## One Short Case

10 Marks

Case Taking Time 10 Minutes

Examination Time 05 Minutes

### ORAL (VIVA VOCE)

**10 Marks**

Duration 10 Minutes

(Instruments, X-ray, Drugs, Emergency in Paediatrics.)

It is directed to interpretation of investigations

Clinical :One long case :30 marks :30 min. for taking case and 10 minutes for assessment

□ Oral (viva voce) :10 marks:10 min. duration

1.Dark Room 5 marks

2.Instruments 5 marks

### **FINAL EXAMINATION :- IN PSM**

The distribution of marks at final examination

Theory : two papers of 60 marks each	120 Marks
Oral (Viva)	10 Marks
Practicals	30 Marks
Internal assessment	40 Marks
□ (Theory 20 Marks)	
□ (Practical 20 Marks)	

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**Total 200 Marks**

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### **PATTERN :**

#### **THEORY : TWO PAPERS OF 60 MARKS EACH 120 MARKS :-**

- Paper I include Concepts in Health & Disease, Sociology / Humanities, Epidemiology, Biostatistics, Communicable and non- communicable diseases, Genetics and Environmental Health.
- Paper II includes Demography & Family Planning, Maternal and child health Nutrition, Occupational Health, Mental Health, Health Education, Health Planning & Management, Health Care Delivery System , National Health Programmes, International Health,
- These are broad divisions. There are some chances of overlapping.

### **NATURE OF THEROY QUESTION PAPERS :**



## Final MBBS Examination of subject-PSM

### Theory

#### Paper –I

#### Paper -II

**Section A :**        **30 MCQs**  
**MCQs**

½ Mark each  
Should cover whole course  
content Of the Paper I  
stated in Section B & C  
below ( Max time = 30 min)

**Section A :**        **30**

½ Mark each  
Should cover whole course  
content Of the Paper II  
stated in Section B & C  
below ( Max time = 30 min)

**Section B:**    Total Marks =25  
2. LAQs, each of 8 Marks  
3. (out of 5 ) SAQs.  
each of 3 marks on

Epidemiology, Bio-statistics  
& communicable & non  
communicable diseases

**Section B:**    Total Marks =25  
2. LAQs, each of 8 Marks  
3. (out of 5 ) SAQs.  
each of 3 marks on

Demography & Family Planning  
Maternal and child health,  
Nutrition, Occupational health;

**Section C:**    Total Marks =20  
One LAQ of 8 marks  
& 4 (out of 6 ) SAQs  
each of 3 marks

**On**  
Concepts in Health & Disease,  
Sociology / Humanities  
Genetics & environmental  
Health

**Section C:**    Total Marks =20  
One LAQ of 8 marks  
& 4 (out of 6 ) SAQs  
each of 3 marks

**On**  
Mental Health, Health Education,  
Health Planning & Management  
Health care delivery system.  
National Health Programmes  
International Health

The full time for section B plus section C shall be of 2½ hrs. of Paper I and 2½ hrs for Paper II.

MCQ Section will be given to candidates first. After 30 minutes the Section B & C will be given to the candidates.

### **PATTERN AT PRACTICAL EXAMINATION**

	Marks
Orals (Viva)	10
Practical	30

The distribution of 30 marks of practical shall be -

- |    |                            |   |          |   |
|----|----------------------------|---|----------|---|
| 1) | Spots                      | - | 10 Marks | ( 5 spots of 2 marks each) Time 10 min.                                       |
| 2) | Exercises                  | - | 10 Marks | ( 5 marks for Bio-Stat. & 5 marks for Epidemiological exercises) Time 10 min. |
| 3) | Clinical case Presentation | - | 10 Marks | Time 45 min.  |

**Total 30 Marks**

**It is compulsory to obtain 50% marks in theory.**  
**It is mandatory to obtain 50% marks in theory+viva/oral.**

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## **COURSE OF SURGERY AND ITS ALLIED SPECIALITIES FOR THIRD M.B.B.S.**

**Inclusion of the book “Manipal Manual of Surgery” as references book for M.B.B.S. Course.**

These guidelines are based on MCI recommendations.

Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

### **SURGERY and allied specialties-**

#### **(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:**

The departmental objectives, syllabus and skills to be developed in the department of surgery during undergraduate medical education are presented herewith. These are prepared taking into consideration of various aspects and institutional goals given below:

1. A medical student after graduation may have different avenues of his/her professional career and may work either as a first contact physician in a private, semi-private or public sector or may take up further specialization in surgery or other specialties.
2. He may have to work in different settings such as rural, semi-urban or urban which may have deficient or compromised facilities.
3. These are based on the various health services research data in our community.
4. These are also based on following institutional goals in general;
  - At the end of the teaching/ training the undergraduate will be able to:
    - Diagnose and manage common health problems of the individual and the community appropriate to his/her position as a member of the health team at primary, secondary and tertiary levels.
    - Be competent to practice curative, preventive, promotive and rehabilitative medicine and understand the concepts of primary health care.
    - Understand the importance and implementation of the National Health Programmes in the context of national priorities.
    - Understand the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude required for professional responsibilities.
    - Develop the ability for continued self-learning with a scientific attitude of mind and acquire further expertise in any chosen area of medicine.

## **A. KNOWLEDGE**

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

1. Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
2. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion.
3. Define asepsis, disinfection and sterilization and recommend judicious use of antibiotics.
4. Describe common malignancies in the country and their management including prevention.
5. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects

## **B. SKILLS**

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

1. Diagnose common surgical conditions both acute and chronic, in adult and children.
2. Plan various laboratory tests for surgical conditions and interpret the results;
3. Identify and manage patients of haemorrhagic; septicæmic and other types of shock.
4. Be able to maintain patent air-way and resuscitate:
  - A A critically injured patient.
  - B Patient with cardio-respiratory failure;
  - C A drowning case.
5. Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children
6. Provide primary care for a patient of burns;
7. Acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring;
8. Treat open wounds including preventive measures against tetanus and gas gangrene.
9. Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring the patient to secondary/territory centers;
10. Identify congenital anomalies and refer them for appropriate management.

In addition to the skills referred above in items (1) to (10), he shall have observed/assisted/performed the following:

- i. Incision and drainage of abscess;
- ii. Debridement and suturing open wound;
- iii. Venesection;
- iv. Excision of simple cyst and tumours.
- v. Biopsy and surface malignancy
- vi. Catheterisation and nasogastric intubation;
- vii. Circumcision
- viii. Meatotomy;
- ix. Vasectomy;
- x. Peritoneal and pleural aspirations;
- xi. Diagnostic proctoscopy;
- xii. Hydrocoele operation;
- xiii. Endotracheal intubation
- xiv. Tracheostomy and cricothyroidotomy;
- xv. Chest tube insertion.

### **Human values, and Ethical practice**

- ☐ .Adopt ethical principles in all aspects of his clinical practice. Professional honesty and integrity are to be fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
- ☐ .Develop communication skills, in particular the skill to explain various options available in management
- ☐ .Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues and specialist in the field when needed.
- ☐ Respect patient's rights and privileges including patient's right to information and right to seek a second opinion

### **© INTEGRATION**

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

## **LEARNING METHODS**

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- ☐ **Lectures - 160 hours**
- ☐ **Tutorials and revision - 140 hours**
- ☐ **Bedside clinics - 468 hours    five clinical postings totalling 26 weeks    including Anaesthesiology**
- ☐ **Clinical postings in General Surgery -**
  - 3rd Semester - 6 weeks
  - 5th Semester - 4 weeks
  - 7th Semester - 4 weeks
  - 8th Semester - 6 weeks
  - 9th Semester - 6 weeks

## **Sequential organisation of contents and their division -**

# GENERAL SURGERY LECTURES

## 4<sup>TH</sup> Term

General Surgery : Part I

16 Lectures

## 6<sup>th</sup> Term 3 modules

### □ Module 1

Vascular Surgery : 8 Lectures

Tropical Surgery : 4 Lectures

Gen. Surgery Remaining

16 Lectures

### □ Module 2

Head and Neck surgery

Endocrine surgery

16 Lectures

### □ Module (3)

Breast surgery 4

Plastic & Reconstructive Surgery 6

Neurosurgery 6

16 Lectures

## 7<sup>th</sup> Term: 3 modules

### □ Module (1)

Cardio Thoracic surgery 8

Paediatric surgery 8

16 Lectures

### □ Module (3)

Liver )

Spleen )

Pancreas )

Biliary Tract )

Portal Hypertension.).

16 Lectures

### □ Module (3)

Upper Gastro intestinal Tract + Peritoneum

16 Lectures

**8<sup>th</sup> Term      4 modules**

- |   |                                      |             |
|---|--------------------------------------|-------------|
| ❑ | <u>Module (1)</u>                    |             |
|   | Lower G.I. tract                     | 16 Lectures |
|   | Abdominal wall,<br>Incisional Hernia |             |
| ❑ | <u>Module (2)</u>                    |             |
|   | Upper GUT                            | 16 Lectures |
|   | Organ transplantation                |             |
| ❑ | <u>Module (3)</u>                    |             |
|   | Lower GUT                            | 16 Lectures |
|   | Hernia, Hydrocoele                   |             |

160 Hours

### 9<sup>th</sup> Term

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Revision Lectures/ tutorials/ lecture cum demonstrations

48

208

## TUTORIALS

6 <sup>TH</sup> Term	Surgical pathology	32
8 <sup>th</sup> Term	Operative Surgery + Instruments	32
9 <sup>th</sup> Term	Imaging sciences- Interpretation of Investigations	28

300

## Course contents- General Surgery - including paediatric surgery

## COURSE CONTENTS

## I. A. GENERAL PRINCIPLES

1. Wound healing and management, scars: Hypertrophic scar and keloid; First aid management of severely injured.
2. Asepsis, antisepsis, sterilisation.
3. Surgical sutures, knots, drains, bandages and splints.
4. Surgical infections and rational use of antibiotics: Causes of infection, prevention of infection, common organisms causing infection.
5. Boils, cellulitis, abscess, necrotising fascitis.
6. Tetanus and Gas gangrene: Prevention of Tetanus and Gas Gangrene.
7. Chronic specific infections: Tuberculosis, Filariasis, and Leprosy.
8. Antibiotic therapy.
9. Hospital infection.
10. AIDS and Hepatitis B; Occupational hazards and prevention.

### I. B. 1. Mechanism and management of missile, blast and gunshot injuries.

2. Surgical aspects of diabetes mellitus.
3. Bites and stings.
4. Organ transplantation - Basic principles.
5. Nutritional support to surgical patients.

## II. RESUSCITATION.

1. Fluid electrolyte balance.
2. Shock: Aetiology, pathophysiology and management.
3. Blood transfusion : Indication and hazards.
4. Common postoperative complications.

## III. COMMON SKIN AND SUBCUTANEOUS CONDITIONS.

1. Sebaceous cyst, dermoid cyst, lipoma, haemangioma, neurofibroma, premalignant conditions of the skin, basal cell carcinoma, naevi and malignant melanoma.
2. Sinus and fistulae. Pressure sores; prevention and management.

## IV. ARTERIAL DISORDERS.

1. Acute arterial obstruction : diagnosis and initial management; types of gangrene ; diagnosis of chronic arterial insufficiency with emphasis on Burger's disease, athreosclerosis and crush injuries.
2. Investigations in cases of arterial obstruction. Amputations;
3. Vascular injuries : basic principles of management.

## V. VENOUS DISORDERS.

1. Varicose veins: diagnosis and management; deep venous thrombosis: diagnosis, prevention, principles of therapy; thrombophlebitis.

## LYMPHATICS AND LYMPH NODES.

1. Diagnosis and principles of management of lymphangitis, lymphedema, acute and chronic lymphadenitis; cold abscess, lymphomas, surgical manifestations of filariasis.

## VII. BURNS.

1. Causes, prevention and first aid management; pathophysiology; assessment of depth and surface area, fluid resuscitation; skin cover; prevention of contractures.

## VIII. SCALP, SKULL AND BRAIN.

1. Wounds of scalp and its management: recognition, diagnosis and monitoring of patients with head injury including unconsciousness; Glasgow coma scale recognition of acute / chronic cerebral compression.

## IX. ORAL CAVITY, JAWS, SALIVARY GLANDS.

1. Oral cavity: I) Cleft lip and palate; Leukoplakia; retention cyst; ulcers of the tongue.  
II) Features, diagnosis and basic principles of management of carcinoma lip, buccal mucosa and tongue, prevention and staging of oral carcinomas.
2. Salivary glands: I) Acute sialoadenitis, neoplasm: diagnosis and principles of treatment.

## IX. B. Epulis, cysts and tumours of jaw: Maxillofacial injuries; salivary fistulae

## X. NECK.

1. Branchial cyst; cystic hygroma.
2. Cervical lymphadenitis: Non-specific and specific, tuberculosis of lymphnodes, secondaries of neck.

X. B. Thoracic outlet syndrome: diagnosis.

## XI. THYROID GLAND

1. Thyroid: Surgical anatomy, physiology, investigations of thyroid disorders; types, clinical features, diagnosis and principles of management of goitre, thyrotoxicosis and malignancy, thyroglossal cyst and fistula.

XI. B. Thyroiditis, Hypothyroidism.

## XII. PARATHYROID AND ADRENAL GLANDS.

1. Clinical features and diagnosis of hyperparathyroidism, adrenal hyperfunction/hypofunction.

## XIII. BREAST.

1. Surgical anatomy; nipple discharge; acute mastitis, breast abscess; mammary dysplasia; gynaecomastia; fibroadenomas.
2. Assessment and investigations of a breast lump.
3. Cancer breast : diagnosis, staging, principles of management.

## XIV. THORAX.

1. Recognition and treatment of pneumothorax, haemothorax, pulmonary embolism: Prevention/ recognition and treatment, flail chest; Stove in chest ; Postoperative pulmonary complications.

XIV. B. Principles of management of pyothorax; cancer lung.

## XV. HEART AND PERICARDIUM.

1. Cardiac tamponade
2. Scope of cardiac surgery.

## XVI. OESOPHAGUS.

1. Dysphagia: Causes, investigations and principles of management.
2. Cancer oesophagus : Principles of management.

## XVII. STOMACH AND DUODENUM.


1. Anatomy; Physiology, Congenital hypertrophic pyloric stenosis; aetiopathogenesis, diagnosis and management of peptic ulcer, cancer stomach; upper gastrointestinal haemorrhage with special reference to bleeding varices and duodenal ulcer.

## XVIII. LIVER

1. Clinical features , diagnosis and principles of management of : Amoebic liver abscess, hydatid cyst and portal hypertension. Liver trauma.

XVIII. B. Surgical anatomy; primary and secondary neoplasms of liver.

## XIX. SPLEEN

-  Splenomegaly: causes, investigations and indications for splenectomy: splenic injury.

## XX. GALL BLADDER AND BILE DUCTS

1. Anatomy, physiology and investigations of biliary tree; clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis; obstructive jaundice.

XX. B. Carcinoma of gall bladder, choledochal cyst.

## XXI. PANCREAS.

1. Acute pancreatitis : Clinical features, diagnosis, complications and management.
2. Chronic pancreatitis, pancreatic tumours.

## XXII. PERITONEUM, OMENTUM, MESENTERY AND RETROPERITONEAL SPACE.



1. Peritonitis : Causes, recognition and principles of management; intraperitoneal abscess.
- XXII B. Laparoscopy and laparoscopic surgery.
- XXIII. SMALL AND LARGE INTESTINES
  1. Diagnosis and principles of treatment of : Intestinal amoebiasis, tuberculosis of intestine, carcinoma colon; lower gastrointestinal haemorrhage; Enteric fever, parasitic infestations.
- XXIII. B. Ulcerative colitis, premalignant conditions of large bowel.
- XXIV. INTESTINAL OBSTRUCTION.
  1. Types, aetiology, diagnosis and principles of management; paralytic ileus.
- XXV. ACUTE ABDOMEN.
  1. Causes, approach, diagnosis and principles of management.
- XXVI. APPENDIX
  1. Diagnosis and management of acute appendicitis, appendicular lump and abscess.
- XXVII. RECTUM.
  1. Carcinoma rectum: diagnosis, clinical features and principles of management; indications and management of colostomy.
- XXVII. B. Management of carcinoma rectum; prolapse of rectum.
- XXVIII. ANAL CANAL .
  1. Surgical anatomy. Clinical features and management of: fissure, fistula in ano, perianal and ischiorectal abscess and haemorrhoids; Diagnosis and referral of anorectal anomalies.
- XXVIII. B. Anal carcinoma.
- XXIX. HERNIAS.
  1. Clinical features, diagnosis, complications and principles of management of : Umbilical, Inguinal, epigastric and femoral hernia.
  2. Omphalitis.
- XXIX . B. Umbilical fistulae, Burst abdomen, ventral hernia.
- XXX. GENITO- URINARY SYSTEM.
  1. Symptoms and investigations of the urinary tract.
- XXXI. KIDNEY AND URETER
  1. Investigations of renal mass; diagnosis and principles of management of urolithiasis, hydronephrosis, pyonephrosis, and perinephric abscess, congenital anomalies of kidney & Ureter and renal tumours.
  2. Renal tuberculosis.
- XXXII. URINARY BLADDER.
  1. Causes, diagnosis and principles of management of haematuria, anuria and acute retention of urine.
- XXXIII. PROSTATE AND SEMINAL VESICLES.
  1. Benign prostatic hyperplasia: diagnosis and management.
- XXXIII. B. Carcinoma prostate.
- XXXIII. URETHRA AND PENIS
  1. Diagnosis and principles of management of Phimosis, paraphimosis and carcinoma penis.
  2. Principles of management of urethral injuries.
  3. Urethral strictures.
- XXXV. TESTES AND SCROTUM
  1. Diagnosis and principles of treatment of undescended testis; torsion testis; Hydrocoele, hematocoele, pyocoele, varicocele, epididymo-orchitis and testicular tumours.

## XXXVI PAEDIATRIC SURGERY

1. Oesophageal atresia and Intestinal atresia
2. Anorectal malformations
3. Constipation in children: Hirschsprung's disease, Acquired megacolon,
4. Congenital diaphragmatic hernia
5. Extrophy, Epispadias complex and hypospadias
6. Spinal diastrophism and Hydrocephalus
7. Urinary tract infections in children- Vesicoureteral reflux, posterior urethral Valves, Vesico Ureteral Junction obstruction/Duplex ureter, Obstructive uropathy in Children : Hydronephrosis, Hydroureteronephrosis
8. Testicular Maldescent
9. Umbilical Hernia, Exompholos: Major/minor
10. Wilm's Tumours: Neuroblastoma, Ganglioneuroma, Ganglioneuroma, Endo-dermal Sinus Tumours.
11. Hamartomas in Children: Lymphangioma and Cystic hygroma, Haemangioma.

Biliary Atresia and Surgical jaundice

### Suggested lecture program

#### Distribution of syllabus in respective semesters

This is suggested programme and can vary at institute

Total 300 hours of teaching has to be done in General Surgery including Tutorials

Details of syllabus is given separately below after distribution as per semester

#### 4<sup>th</sup> Semester : 16 Lectures

- 1) Introduction to Surgery
- 2) Body response to injury
- 3) Wound and wound healing
- 4) Acute infection, Boils, Carbuncle etc
- 5) Chronic infections
- 6) Tetanus and Gas gangrene
- 7) Neoplasm General Consideration
- 8) Surgical Nutrition
- 9) Pre operative and Post operative Care
- 10) Sepsis and Anti Sepsis
- 11) Burns
- 12) Shock
- 13) Fluid and Electrolyte Balance
- 14) Monitoring of surgical Patients
- 15) Hemostasis and Blood transfusion.

**Module 1**

**General surgery**

- a. Polytrauma
- b. Missiles and their effects & blast injuries
- c. Management of war wounds
- d. Surgical diseases skin conditions
- e. Minimally invasive surgery
- f. Principal of Radiotherapy
- g. OT Techniques
- h. AIDS in surgery
- i. Foot including Diabetic Foot
- j. Hand and hand infection

**Vascular Surgery**

**\* ARTERIAL DISORDERS.**

1. Acute arterial obstruction: diagnosis and initial management; types of gangrene ; diagnosis of chronic arterial insufficiency with emphasis on Burger's disease, athreosclerosis and crush injuries.
2. Investigations in cases of arterial obstruction. Amputations;
3. Vascular injuries : basic principles of management.
4. Surgically correctable Hypertension

**\* VENOUS DISORDERS.**

1. Varicose veins: diagnosis and management; deep venous thrombosis : diagnosis, prevention, principles of therapy; thrombophlebitis.

**LYMPHATICS AND LYMPH NODES.**

Diagnosis and principles of management of lymphangitis, lymphedema, acute and chronic lymphadenitis; cold abscess, lymphomas, surgical manifestations of filariasis.

**□ Module 2**

***HEAD, FACE, NECK***

***8 lectures***

**1. ORAL CAVITY , JAWS, SALIVARY GLANDS.**

1. Oral cavity :
  - I) Cleft lip and palate; Leukoplakia ; retention cyst; ulcers of the tongue.
  - II) Features, diagnosis and basic principles of management of carcinoma lip, buccal mucosa and tongue, prevention and staging of oral carcinomas.
2. Salivary glands :
  - I) Acute sialoadenitis, neoplasm : diagnosis and principles of treatment
  - II) Salivary fistulae

**2. Epulis, cysts and tumours of jaw: maxillofacial injuries**

**3 NECK**

1. Branchial cyst; cystic hygroma.
2. Cervical lymphadenitis : Non specific and specific,
3. Tuberculosis of lymphnodes, secondaries of neck.
4. Thoracic outlet syndrome : diagnosis.

## **2. ENDOCRINE SURGERY**

*8 lectures*

### **A.THYROID GLAND**

i) Thyroid : Surgical anatomy, physiology, investigations of thyroid disorders; types, clinical features, diagnosis and principles of management of goitre, thyrotoxicosis and malignancy, thyroglossal cyst and fistula.

ii) Thyroiditis, Hypothyroidism.

### **B.PARATHYROID AND ADRENAL GLANDS.**

Clinical features and diagnosis of hyperparathyroidism,

Tumours of the adrenal gland

Adrenal hyperfunction/ hypofunction

### **C.Diseases of thymus**

## **□ Module 3**

### **1.NEURO-SURGERY**

*6 lectures*

1. Head injury
2. Intracranial tumours & other ICSOL
3. Congenital anomalies of brain & spinal cord
4. Surgery of peripheral nerves & diseases

### **2. Surgery of Breast**

*5 lectures*

1. Surgical anatomy; nipple discharge; acute mastitis, breast abscess; mammary dysplasia; gynaecomastia; fibroadenomas.
2. Assessment and investigations of a breast lump.
3. Cancer breast : diagnosis, staging, principles of management

### **3. PLASTIC & RECONSTRUCTIVE SURGERY**

*6 lectures*

- 1.Management of burns
- 2.Skin grafting including flaps
- 3.Injuries of the hand
- 4.Infections of the hand

## **7 th Semester**

### **Module (1)**

Cardio Thoracic surgery	8
Paediatric surgery	8

*16 lectures*

### **□ CARDIO-THORACIC SURGERY**

1. Injuries of the chest
2. Tumours of the lung & bronchial tree
3. congenital heart disease
4. Acquired heart disease
5. Surgery of ischaemic heart disease
6. Diseases of pericardium
7. Cardiac arrest

## Paediatric Surgery

1. Oesophageal atresia and Intestinal atresia
2. Anorectal malformations
3. Constipation in children: Hirschsprung's disease, Acquired megacolon,
4. Congenital diaphragmatic hernia
5. Extrophy, Epispadias complex and hypospadias
6. Spinal diastrophism and Hydrocephalus
7. Urinary tract infections in children- Vesicoureteral reflux, posterior urethral Valves, Vesico Ureteral Junction obstruction/Duplex ureter, Obstructive uropathy in Children : Hydronephrosis, Hydroureteronephrosis
8. Testicular Maldescent
9. Umbilical Hernia, Exompholos : Major/minor
10. Wilm's Tumours: Neuroblastoma, Ganglioneuroma, Ganglioneuroma, Endo-dermal Sinus Tumours.
11. Hamartomas in Children : Lymphangioma and Cystic hygroma, Haemangioma.
12. Biliary Atresia and Surgical jaundice

## Module 2

### ❑ **TROPICAL SURGERY**

1. Surgical consideration in Amoebiasis & Enteric fever
2. Filariasis, Dracontiasis & Ascariasis
3. Hydatid disease
4. Leprosy, Madura foot, Tropical ulcer Actinomycosis

### ❑ **HEPATOBIILIARY PANCREATIC SURGERY +SPLEEN**

#### A.LIVER

- ❑ Clinical features, diagnosis and principles of management of: Amoebic liver abscess, Liver trauma
- ❑ Surgical anatomy; primary and secondary neoplasms of liver.

#### SPLEEN

- ❑ Splenomegaly: causes, investigations and indications for splenectomy: splenic injury.

#### GALL BLADDER AND BILE DUCTS

- ❑ Anatomy, physiology and investigations of biliary tree; clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis; obstructive jaundice.
- ❑ Carcinoma of gall bladder, choledochal cyst.

#### PANCREAS.

- ❑ Acute pancreatitis: Clinical features, diagnosis, complications and management.
- ❑ Chronic pancreatitis, pancreatic tumours.

#### PORTAL HYPERTENSION

- ❑ Clinical presentation, Investigation and management

## Module 3

## Upper gastrointestinal Tract and Peritoneum

- ❑ PERITONEUM, OMENTUM, MESENTERY AND RETROPERITONEAL SPACE.
  1. Peritonitis: Causes, recognition and principles of management;
  2. Intraperitoneal abscess
- ❑ OESOPHAGUS.
  1. Dysphagia: Causes, investigations and principles of management.
  2. Cancer oesophagus: Principles of management.
- ❑ STOMACH AND DUODENUM.
  1. Anatomy; Physiology, Congenital hypertrophic pyloric stenosis; aetiopathogenesis, diagnosis and management of peptic ulcer, cancer stomach; upper gastrointestinal haemorrhage with special reference to bleeding varices and duodenal ulcer.
- ❑ SMALL INTESTINES
  1. Diagnosis and principles of treatment of, tuberculosis of intestine.

## 8<sup>th</sup> Semester

### Module 1

## Lower gastrointestinal Tract and abdominal wall

- ❑ Acute Abdomen
- ❑ INTESTINAL OBSTRUCTION.

Types, aetiology, diagnosis and principles of management; paralytic ileus  
Aetiology, Clinical Features. Investigations and management
- ❑ Abdominal Wall
  - 1.Features, diagnosis, complications and principles of management of :  
Umbilical, epigastric hernia., incisional; hernia ventral hernia
- ❑ LARGE INTESTINES

Ulcerative colitis, premalignant conditions of large bowel carcinoma colon;  
lower gastrointestinal haemorrhage;; parasitic infestations.
- ❑ APPENDIX

Diagnosis and management of acute appendicitis,  
Appendicular lump and abscess.
- ❑ RECTUM.

Carcinoma rectum: diagnosis, clinical features and principles of  
management; indications and  
Management of colostomy.  
Management of carcinoma rectum;  
Prolapse of rectum.
- ❑ ANAL CANAL

Surgical anatomy. Clinical features and management of: fissure, Fistula in  
ano, perianal and ischiorectal abscess and haemorrhoids; Diagnosis and  
referral of anorectal anomalies.  
Anal carcinoma.
- ❑ Umbilicus and Abdominal wall

Umbilical fistulae, Burst abdomen, ventral hernia.

## Module 2

### Upper genito-urinary Tract and Organ Transplantation

- ❑ GENITO- URINARY SYSTEM.
- ❑ Symptoms and investigations of the urinary tract.
- ❑ KIDNEY AND URETER
  - Anatomy and Embryology of Kidney and ureter
  - Congenital anomalies of kidney & Ureter
  - Investigations of renal mass;
  - Diagnosis and principles of management of urolithiasis,
  - Hydronephrosis, pyonephrosis, perinephric abscess,
  - Renal tumours.
  - Renal tuberculosis.

## Module 3

### Upper genito-urinary Tract and Hernia

- ❑ URINARY BLADDER.
  - Causes, diagnosis and principles of management of haematuria,
  - Anuria and Acute retention of urine.
- ❑ PROSTATE AND SEMINAL VESICLES.
  - Benign prostatic hyperplasia: diagnosis and management.
  - Carcinoma prostate.
- ❑ URETHRA AND PENIS
  - Diagnosis and principles of management of Phimosis , paraphimosis and.
  - Principles of management of urethral injuries.
  - Urethral strictures.
  - Carcinoma penis
- ❑ TESTES AND SCROTUM.
  - Diagnosis and principles of treatment of undescended testis; torsion testis;
  - Hydrocoele, hematocoele, pyocoele,
  - Varicocele, epididymo-orchitis and
  - Testicular tumours
- ❑ HERNIAS.
  - Clinical features, diagnosis, complications and principles of management of:
  - Umbilical, Inguinal, epigastric and femoral hernia.

Introduction of “ Brain Death and Organ Donation” topic in subjects of Physiology , Preventive & Social Medicine, Psychiatry, Medicine & Surgery

## RECOMMENDED BOOKS FOR GENERAL SURGERY

### TEXT BOOKS:

- 1 . Charles V. Mann, R.C.G. Russel, Norman S., Williams,  
Bailey and Love’s Short Practice of Surgery, 23<sup>rd</sup> Edition, 2000 Chapman and Hall.
2. K.Das: Clinical Methods in Surgery, 8<sup>th</sup> Edition, 1968, Suhas Kumar Dhar, Calcutta.
3. JSP Lumley : Hamilton Bailey’s Physical Signs 18<sup>th</sup> Edn Butterworth/Heinemann.

- 1997,  
4. Somen Das ; A Practical Guide to Operative Surgery, 4<sup>th</sup> Edition, 1999, s. Das,  
Calcutta

#### **REFERENCE TEXT BOOKS**

1. James Kyle : Pye's Surgical handicraft, Indian edition, k.m. Varghese Company David C.
2. Sabiston ; Text Book of surgery : The Biological basis of Modern Surgical Practice, 15<sup>th</sup> Edition, 1971, W.B. Saunders.
3. Seymour I. Schwartz, G. Tom Shines, Frank C. Spencer, Wendy Cowles Husser: Principles of Surgery, Vol. 1 & 2, 7<sup>th</sup> Edition, 1999, Mc Graw Hill
4. R.F. Rintoul : Farquharson's Text Book of Operative Surgery, 8<sup>th</sup> Edition, 1995, Churchill Livingstone.
5. Sir Charles Illingworth, Bruce m. Dick: A Text Book of Surgical Pathology, 12<sup>th</sup> Edition, 1979, Churchill Livingstone.
6. R.W.H. McMinn : Last's Anatomy: Regional and Applied; 10<sup>th</sup> Edition, 1999, Churchill Livingstone

## **Goals and objectives of Allied Subjects**

### **(B) ORTHOPAEDICS**

#### **(A) KNOWLEDGE**

The student shall be able to:

1. Explain the principles of recognition of bone injuries and dislocation.
2. Apply suitable methods to detect and manage common infections of bones and joints.
3. Identify congenital, skeletal anomalies and their referral for appropriate correction or rehabilitation.
4. Recognize metabolic bone diseases as seen in this country:
5. Explain etiology, manifestations, and diagnosis of neoplasm affecting bones.

#### **(B) SKILLS:**

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

1. Detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, Colles's forearm, phalanges etc.
2. Use techniques of splinting, plaster, immobilization etc.
3. Manage common bone infections, learn indications for sequestration, amputations and corrective measures for bone deformities;
4. 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**

### **LEARNING METHODS**

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- ❑ Lectures - 50 hours
- ❑ Tutorials and revision - 50
- ❑ **Clinical postings in Orthopaedics**  
**Total clinical Posting of 10 weeks of 180 hours**  
5th Semester - 4 weeks  
6th Semester - 4 weeks  
9th Semester - 2 weeks

### **Course contents and suggested lecture program of Orthopaedics (Total 100 hours)**

This is suggested programme and can vary at institute

Total 100 hours of teaching has to be done in Orthopaedics including Tutorials

Details of syllabus is given separately below after distribution as per semester

- |                                  |                         |
|----------------------------------|-------------------------|
| ❑ <b>6<sup>th</sup> Semester</b> | <b>Lectures 1 to 16</b> |
| ❑ 8 <sup>th</sup> Semester       | Lectures 1 17 to 32     |
| ❑ 8 <sup>th</sup> Semester       | Lectures 2 33 to 48     |

*Topic : General Orthopaedics*

Lectures

1. Introduction and scope of Orthopaedics Traumatology and Orthopaedic Diseases. Idea about Scheme of Examination.
  2. Definition and Classification of Fracture and Dislocation Signs, symptoms and diagnosis of sprain, contusion fracture and dislocation.
  3. First aid measures in Poly-trauma patient, spinal cord Injury patients and knowledge about various splints.
  4. & 5 Principles of Management of sprain, Fracture and Dislocation with emphasis on various aspects of closed reduction, immobilization including internal fixation and rehabilitation.
  - 6,7,8 Complications of fracture and its management with specific reference to malunion Delayed union, Non union, Myositis Ossificans, Sudeck's dystrophy, Volkman's ischaemia, Avascular Necrosis, Fat embolism, secondary Osteoarthritis and injury to Muscles, Tendon, nerve and Blood vessels.
- 
1. Plaster technique, plaster complications and plaster disease.
  2. Fracture Healing in cortical and cancellous bones and factors affecting fracture healing.

**Topic : Orthopaedic Traumatology**

3. Fracture clavicle, scapula, neck humerus and shaft humours.
4. Supracondylar fracture humerus with complications.
5. Fracture Forearm bones, Monteggia and Galeazzi fracture dislocations, fracture olecranon head and neck radius.
6. Fracture scaphoid, Metacarpals and phalanges.
7. Colles fracture and Complications.
8. Dislocation (Acute and Recurrent) of shoulder and elbow.
9. Fracture of Vertebrae with complications.
10. Fracture of Pelvis with complications.
11. Fracture Neck femur and trochanteric fracture.
12. Fracture shaft femur and fractures around knee.
13. Meniscus and ligaments injury at knee.
14. Fracture Tibia-fibula, fracture in tarsals, Metatarsals and phalanges.
15. Fracture dislocation around ankle,
16. Dislocation of Hip, knee, ankle, tarsals and small bones in foot.

**Topic : Orthopaedic Diseases**

- 25,26 Congenital skeletal anomalies with emphasis on congenital Talipes Equino varus (CTEV). :-
  27. Congenital dislocation of hip (CDH), Osteogenesis Imperfecta, spina
  28. Bifida and Torticollis.
  29. Osteochondritis – various types.
  30. Post Polio Residual Palsy with stress on preventive and rehabilitation aspect.

30. Acute Osteomyelitis.
31. Chronic Osteomyelitis.
32. Pyogenic arthritis of Hip, knee.
- 33,& 34. Osteo-articular Tuberculosis with special reference to  
Tuberculous of Hip, knee and elbow.:-
35. Tuberculosis spine and paraplegia.
36. Fungal Infections and leprosy in Orthopaedics.
37. Cerebral palsy, Diagnosis and rehabilitation.
38. Rheumatoid arthritis.
39. Degenerative arthritis.
40. Nerve injuries and principles of management.
41. Amputation and Disarticulation – Indications methods and complications.
42. Metabolic bone disease : Rickets, Osteomalacia and Osteoporosis.
- 43,& 44 Tumours of bones and its classification. Benign :- Osteochondroma,  
Giant cell tumour Unicameral Bone cyst, Aneurysmal cyst.
- 45,46 Malignant- Osteogenic sarcoma, Ewing's tumour,  
Fibrosarcoma, Chondrosarcoma, Multiple Myeloma, Secondaries from  
Primary Carcinoma (Metastatic tumours)
47. Back ache,
48. Frozen shoulder, Tennis Elbow, Dequervain's disease, Dupuytren's  
Contracture Osgood – Schlatter's disease, planter fascitis.

### **Practical and Lecture cum Demonstration Classes, in MBBS in Orthopaedics**

Once a week class for two hours in 8<sup>th</sup>/9<sup>th</sup> semester.

Topics of Demonstrations :-

1. Plaster technique and splint applications.
2. Traction application, Orthopaedic appliances demonstration, Demonstration of  
Physiotherapy equipments.
3. Specimens of sequestrum and Tumours, Madura foot etc.
4. Common instruments and Implants.
- 5 to 7. Common X-rays of traumatology, bony infection, joint infection and  
tuberculosis, Malunited Colle's fracture, forearm or Supracondylar Humerus fracture.
- 8 to 10. Chronic osteomyelitis case, knee effusion case, Non union case, Bony  
tumour case.

Seminar Topics :-

1. Osteomyelitis.
2. Tuberculosis.
3. Bone tumours
4. First aid and Acute trauma Life saving (ATLS) measures.

Tutorial Topics :-

15. Supracondylar fracture Humerus.
16. Colle's fracture.
17. Fracture neck femur.
18. Spine examination, Pott's spine and paraplegia
19. CTEV.
20. Shoulder, Elbow and wrist examination.
21. Hip examination.
22. Knee, ankle foot examination.
23. Nerve examination and nerve injuries.

**Internal assessment:**

- Two Term ending examination at the end of Posting of 50 marks each  
Total 100 out of 450 marks under general surgery.

## **C) ANAESTHESIOLOGY**

**DEPARTMENTAL OBJECTIVES:**

At the end of the training, the students should be able to:

1. Perform cardio-pulmonary resuscitation with the available resources and transfer the patients to a bigger hospital for advanced life support.
2. Set up intravenous infusion.
3. Clear and maintain airway in an unconscious patient.
4. Administer oxygen correctly.
5. Perform simple nerve block.
6. Exhibit awareness of the principles of administration of general and local anaesthesia.

**SKILLS:**

1. Start I V line and infusion in adults, children and neonates.
2. Do venous cutdown.
3. Insert, manage a CVP line.
4. Conduct CPR (Cardiopulmonary resuscitation) and first aid in newborns, children and adults including endotracheal intubation.
5. Perform nerve blocks like infiltration, digital and field blocks.
6. Do lumbar puncture.
7. Administer O<sub>2</sub> by mask, catheter, and O<sub>2</sub> tent and be able to handle O<sub>2</sub> cylinder.

## LEARNING METHODS

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- ❑ **Lectures - 20 hours**
- ❑ **Tutorials and revision -**
- ❑ **Bedside clinics - 36 hours, one clinical postings  
2 weeks in Anaesthesiology**

## COURSE CONTENTS:

1. Cardiopulmonary resuscitation (CPR) - basic and advanced, including use of simple ventilators.
2. Anatomy of upper airway, sites of respiratory obstruction and management of airway in an unconscious patient.
3. Various methods of oxygen therapy and its indications.
4. The pharmacology of local anaesthetics, their use and how to perform simple nerve blocks like - Infiltration anaesthesia, digital block, ankle block, pudendal and paracervical blocks.
5. Management of complications of regional anaesthesia. The principles of administration of general anaesthesia.

## D) Radiology :Diagnosis & Imaging

### Goals :

- ❑ Realisation of the basic need of various radio-diagnostic tools.
- ❑ Radio-diagnostic Techniques to be adopted indifferent clinical situations in diagnosis of ailments.

### Objectives :

- ❑ **Knowledge: -**

The student shall be able to

1. Understand basics of X-ray / USG production, its utility and hazards
2. Appreciate and diagnose radiological changes in diseases of Chest, Abdomen, Skeletal system, Gastro-intestinal system, Genito-urinary System & CNS
3. Learn about various Imaging techniques like nuclear medicine, computerised tomography (CT), Ultrasound, magnetic resonance imaging (MRI), conventional & Digital subtraction Angiography (DSA).

## **Skills: -**

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

1. Interpret various radiological findings and their consequences
2. Use basic protective techniques during various Imaging procedures
3. Advise appropriate Diagnostic procedures to arrive at an appropriate diagnosis.

## **LEARNING METHODS**

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- ☐ Lectures - 20 hours
- ☐ Tutorials and revision -
- ☐ Bedside clinics - 36 hours, one clinical postings  
2 weeks in Radiology

### **I: BONES & JOINTS :**

Congenital dislocation of hip, congenital syphilis, Achondroplasia, Osteogenesis Imperfecta.

Infection : Osteomyelitis, Tuberculosis of Bone & Spine.

Lesions of Joints : Septic / Tuberculous Arthritis, Rheumatoid, Arthritis, Ankylosing Spondylitis, Osteo-Arthritis, Gout.

Bone Tumours: Ewing's, Osteogenic Sarcoma, Giant Cell Tumour Neurofibroma.

Lymphoreticular system & Haemopoietic Disorders : Thalassemia, Sickle Cell disease, Lymphomas, Multiple myeloma, plasmacytoma, Haemophilia.

Metabolic & Endocrine Disorders of Bone: Rickets & Osteomalacia, Scurvy, Osteoporosis, Acromegaly, and Hyperparathyroidism.

Skeletal trauma: General Principles.

### **II: Chest:**

Methods of examination, Normal X-ray Chest, Bronchopulmonary Segments.

Interpretation of Abnormal Chest X-ray : Silhouette sign, Air Bronchogram,

Interstitial Shadows, Alveolar Shadows, Honeycomb Lung, Cavitations, Calcification, Hilar Shadow, Mediastinum, Pleura.

Bronchography.

Bronchogenic Carcinoma.

Miliary Shadows, Pulmonary Tuberculosis, Solitary Pulmonary Nodule, Bronchiectasis, Primary complex.

### **III : CARDIO-VASCULAR SYSTEM**

Normal Heart : Methods of examination.

Cardiomegaly, Pericardial Effusion.

Acquired Heart Diseases: Valvular Heart Disease, Ischaemic Heart Disease.

Congenital Heart Disease.

Aortic Aneurysms, Co-arcuation of Aorta.

### **IV : GASTRO-INTESTINAL TRACT & ABDOMEN :**

Barium Examination of GI Tract.

Acute Abdomen.

Oesophagus: Carcinoma, Strictures, Varices, Achalasia, and Hiatus Hernia.

Stomach & Duodenum : Ulcer disease, Malignancy.

Intestine: Intestinal Obstruction, Volvulus, Ulcerative Colitis,

Intussusceptions, Malignancy, Hirschsprung's Disease, Koch's Abdomen Diverticular Disease, Polyps.

### **V : HEPATO-BILARY SYSTEM, PANCREAS :**

Liver : Abscess, Hepatoma, Cirrhosis, Portal Hypertension, and Splanchnic Portography.

Gall-Bladder : Calculus Disease, Malignancy, PTC, ERCP.

Pancreas : Pancreatitis, Malignancy.

### **VI : URO RADIOLOGY:**

Method of Examination : Intravenous Urography (IVP)

Calculus Disease, PUJ Obstruction, PU Valves, Renal Artery Stenosis,

Wilm's Tumour, Renal Cell Carcinoma, GU Koch's.

### **VII : OBSTETRICS & GYNAECOLOGY :**

Hysterosalpingography (HSG), Intra-Uterine Foetal Death, Fibroid, Ovarian Tumours, Ultrasonography & Transvaginal US.

### **VIII : CENTRAL NERVOUS SYSTEM :**

Raised Intracranial Tension, Intracranial Calcification, Head Injury, Cerebrovascular Accident, Ring Enhancing Lesions in Brain, Spinal Neoplasms, Myelography.

### **IX: MISCELLANEOUS:**

Radiation Hazards, Radiation Protection.

Imaging Modalities :

USG, CT, MRI : Principles, Applications, Advantages, Limitations, Developments.

Angiography : Seldinger Technique, Conventional Angiogram, DSA, Carotid, Coronary, Renal Angiograms, Aortogram.

Contrast Media : Barium Sulphate, Water Soluble & Oily Contrast.

Interventional Radiology : Developments, Angioplasty, Embolisation.

Mammography: Principles & Applications.

Internal assessment:

- Term ending examination at the end of Posting of 50 marks out of Total 450 marks under general surgery.

## **Dentistry for MBBS students under Surgery**

### **GOALS**

- Comprehensive understanding of Dentistry, Orofacial structures, the Dentition, Maxillary and Mandibular jaws and the Diagnosis, Treatment, Prevention, Restoration and Rehabilitation of the common dental problems

### **OBJECTIVES**

#### **A. KNOWLEDGE**

- Various Diseases, Syndromes, Lesions, Disorders manifesting and affecting the Oral cavity, the Jaws and the TM joint.
- Effects of Dental Caries, Gingival and Periodontal diseases and Malocclusion.

#### **B. SKILLS**

- Examination of the Oral cavity and the TM Joint
- Local Anaesthesia Administration. Dental block
- Exodontia.
- Emergency management of Maxillofacial Trauma.
- Plaque control and Oral health care regimen.

### **Learning methods**

|| Total teaching hours: 10

|| Theory lectures: 10 in 7<sup>th</sup> Semester



|| Clinical Postings; 2weeks each in 7<sup>th</sup> semester

Internal assessment:

- Term ending examination at the end of Posting of 50 marks out of Total 450 marks under general surgery.

## **COURSE**

III MBBS, 7Th SEMESTER LECTURES: 10 Hours.

1. Scope of Dentistry  
Introduction of various branches of Dentistry.  
Basic Understanding of Dental Epidemiology  
Effects of deleterious Habits on Dentition and Orofacial structures.
2. Development and Growth of Jaws & Orofacial structures.  
Development & Eruption of teeth, Deciduous & Permanent.  
Occlusion.  
Preventive Care in Paediatric patients.
3. Dental Caries  
Gingival & Periodontal Diseases.  
Developmental Anomalies.  
Cysts & Tumours of Oral cavity.  
Neoplasms of Oral cavity.  
Oral Microbiology.
4. Orofacial Pain & its Management
5. Maxillofacial Trauma and Management of patient.
6. Oral Medicine  
Systemic diseases, the relevance of medications prescribed & their Oral Manifestations.  
Infections of Orofacial structures esp. periodontal diseases & their Manifestations in Systemic conditions.  
Relationship between Oral and systemic health.  
Women's Oral health care in Reproductive phase.
7. Interdisciplinary team approach in the management of a patient in Dentistry involving Paediatrics, Plastic surgery, ENT Surgery, Neurosurgery, Ophthalmic surgery, Gen. Surgery, Medicine, Orthopaedics, Dermatology, Endocrinology and OB-GYN.

8. Rehabilitation of lost Oral structures.  
Implantology.
9. Dentofacial Deformities and Surgical corrections.
10. Biomaterials used in Dentistry.  
Emerging technologies in Contemporary Dentistry.  
Molecular Dentistry.  
Integration with anatomy, surgery,  
pathology radiology and Forensic Medicine be done.

**CLINICAL POSTING in DENTISTRY - 2 WEEKS**

1. L.A. Administration, Techniques for different Blocks.
2. Exodontia
3. Preliminary Management of Maxillofacial Trauma
4. Pathological conditions of Oral cavity.
5. Oral and Maxillofacial Radiography & Imaging
6. Maxillo Facial Prosthodontics

**Criteria of passing in various surgical subjects at III MBBS Examination**

SN	Subject	Theory Paper / Oral/ Practical / Internal Assessment		Maxim um Marks in each of the subject	Minimum marks required to pass in each part of any subject		Minimum marks required to pass in each subject out of
01)	Otorhinolaryngology	a) Theory	Paper - I	40	20	25	50  100
		b) Oral		10			
		c) Practical		30		15	
		d) Internal Assessment	Theory	10		10	
			Practical	10			
02)	General Surgery	a) Theory	Paper I	60	60	70	150  300
			Paper II	60			
		b ) Oral		20			
		c) Practical		100		50	
		d) Internal Assessment	Theory	30	30		
			Practical	30			
03)	Obstetrics and Gynaecology	a) Theory	Paper1	40		50	100  200
		b ) Oral		20			
		c) Practical		60	30		
		d) Internal Assessment	Theory	20			
			Practical	20			

04)	Ophthalmology	a) Theory	Paper - I	40	20	25	50 100
		b) Oral		10			
		c) Practical		30		15	
		d) Internal Assessment	Theory	10		10	
			Practical	10			

**It is compulsory to obtain 50% marks in theory.**

It is mandatory to obtain 50% marks in theory+ viva/oral.

### **FINAL MBBS EXAMINATION IN SURGERY**

**Evaluation : Methods – Internal assessment, Theory, Practical and Viva**

#### **Internal Assessment ( Formative Assessment)**

Theory – 30    Practical - 30    Total 60

- Marks of Internal Assessment should be sent to University before the commencement of Theory examination.
- Passing in internal assessment is essential for passing ,as Internal assessment is separate head of passing. in examination.
- It will also be considered for grace marks as per existing rules
- Combined theory and practical of internal assessment will be considered for passing in internal assessment.
- Student will be allowed to appear for both theory and practical exam independent of marks obtained in internal assessment but he if fails in that head even after including the grace marks he will be declared **“Fail in that Subject”**

#### **Internal assessment in Theory -**

##### ***Examinations during semesters:***

This will be carried out by conducting two theory examinations during 6th and 8th semesters (100 marks each).

Total of 200 marks to be converted into 15 marks.( A/15)

##### ***Prelim examination :***

This shall be carried out during 9th semester. Two theory papers of 60 marks each as per university examination Pattern

Total of 120 marks to be converted into 15 marks. ( B/15)

Total marks of Internal assessmentfor Theory will be addition of A and B.

## **Internal assessment in Practical**

### ***Examinations at end of Clinical postings:***

There will be practical examination at the end of each clinical posting of General Surgery. (3rd, 5th, 7th and 8th semester) Each examination will be of 50 marks.

Total of 4 examinations - 200 marks.

These marks and marks from Orthopaedics 100, Radiology 50, Dentistry 50 and Casualty 50 will be added. - Total 450 marks will be converted to 15 marks.( C/15)

### ***Prelim examination:***

This will be conducted for 120 marks as per university pattern and marks will be converted to 15 (D/15).

Total marks of Internal assessment for Practical will be addition of C and D.

### **Record BOOK**

Case record will have to be entered in a record book.

A combined record book of General surgery, Orthopaedics, Causality, Anaesthesiology, Dentistry and radiology will have to be maintained

Minimum of five histories have to be recorded in each posting

The certificate of satisfactory completion of all clinical posting will be required from Head Of the department of Surgery. This will be base on multiple similar certificates from all postings in all subjects

In addition it will have details of all marks in posting ending exam on second page and calculation of internal assessment

Record book will not carry any marks but it will be prerequisite for Appearing for examination.

### **Pattern of theory examination including distribution of marks.** **Questions and Time**

## Theory

1. There shall be two theory papers - Paper I and II, carrying 60 marks each.
2. Each paper will have three sections, A, B and C. Each paper will be of 3 hours duration.
3. Section A will be MCQ in each paper. Section B and C will have to be written in separate answer sheets. Both will have Long Answer Question ( LAQ) and Short Answer Questions (SAQ)
4. The topic covered in each section shall be as follows : -

### A. Paper I

- Section A – MCQ : will cover whole syllabus of Paper I
- Section B- General principles of Surgery, Oncology, head, face, neck, Breast, Endocrine Surgery and Trauma
- Section C - Orthopaedic surgery.

### B. Paper II

- Section A – MCQ : will cover whole syllabus of Paper II
- Section B- Gastrointestinal Tract including colon rectum and anal canal
  - Liver, pancreas and biliary tract, Spleen. Paediatric Surgery
- Section C - Urology, Cardio thoracic surgery and Plastic surgery  
Dental surgery, Radiology and Radiotherapy, Anaesthesiology.

### Paper I - 3 hrs - 60 marks

Section . A - MCQ - 30 x ½ marks each – 15 marks

- 30 minutes
- Separate paper
- Single based response
- MCQ will cover whole syllabus of Paper I

Section . B - General Surgery 25 Marks

- 2 LAQS – 8 marks x 2 = 16 marks
- 3/5 SAQS – 3 marks = 9 marks

**Topics** - General principles of Surgery, Oncology, head, face, neck, Breast, Endocrine Surgery and Trauma..

***NB : Shall contain one question on basic Sciences and allied subjects***

• Sec. C –Orthopaedics Surgery : 20 marks

- Topic; All topics in Orthopaedics
- Orthopaedics examiner will set this part of paper and to be evaluated by Orthopaedics examiner.

- 1 LAQS ( Long answer questions) – 8 marks
- 4/6 SAQS( Short answer questions) x 3 marks each = 12 marks

**Time Sec. B & C – Two and half hours.**

**Section B and C to be written in separate answer sheets.**

*MCQ section A will be given to candidates at the beginning of the examination. After 30 minutes Section A will be collected.  
Section B and C paper will then be handed over to candidates.*

**PAPER II - Time 3 hrs - 60 marks**

Section . A - MCQ - 30 x ½ marks – 15 marks

- 30 minutes
- Separate paper
- Single based response
- MCQ will cover whole syllabus of Paper II

Section . B – **Marks: 25 marks**

Topics :Gastrointestinal Tract including colon rectum and anal canal  
Liver, pancreas and Biliary tract, Spleen, Paediatric surgery.

- 2 LAQS – 8 marks x 2 = 16 marks
- One question clinical Problem solving.
- 3/5 SAQS – 3 marks = 9 marks

**NB : Shall contain one question on basic Sciences and allied subjects**

Section . C – **Marks: 20 marks**

Topics: Urology, Cardio thoracic surgery and plastic surgery  
Dental surgery, Radiology and Radiotherapy, Anaesthesiology.

- 1 LAQS – 8 marks
- 4/6 SAQS x 3 marks each = 12 marks

**Time Sec. B & C – Two and half hours.**

**Section B and C to be written in separate answer sheets.**

*MCQ section A will be given to candidates at the beginning of the examination. After 30 minutes Section A will be collected. Section B and C paper will then be handed over to candidates.*

**PRACTICAL EXAMINATION - 120 marks**

**Clinical examination**

- Clinical cases
  - Long case I – Gen, Surgery. – 50 marks
  - Short case I - Orthopaedics – 25 marks
  - Short case II – Gen. Surgery -- 25 marks

Time for Long cases- 30 minutes for taking history and clinical examination.

10 minutes for viva

Time for 2 short cases - 20 minutes for taking history and clinical examination.

10 minutes for viva.

**Viva examination** - Duration and topic distribution (Total 20 marks)

- Tables – Viva will be directed towards **interpretation of investigation**

At two tables, each for ten marks. Time- 10 minutes at each table

- Instruments + Operations, – 10 marks
- Surgical Pathology, Imaging sciences and Orthopaedics – 10 marks

**Marks of VIVA will be added to Theory marks**  
**It is compulsory to obtain 50% marks in theory.**  
**It is mandatory to obtain 50% marks in theory+viva/oral.**

## **OPHTHALMOLOGY**

These guidelines are based on MCI recommendations.

Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

### **(i) GOAL**

The broad goal of the teaching of students in ophthalmology is to provide such knowledge and skills to the student 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, student shall have the knowledge of

- 1.Common problems affecting the eye,
2. Principles of management of major ophthalmic emergencies,
- 3.main systemic diseases affecting the eye;
4. Effects of local and systemic diseases on patient's vision and the necessary action required to minimize the sequelae of such diseases;
5. Adverse drug reactions with special reference to ophthalmic manifestations;
- 6, Magnitude of blindness in India and its main causes;
7. National programme for control of blindness and its implementation at various levels.
8. Eye care education for prevention of eye problems
9. Role of primary health center in organization of eye camps;
- 10.organization of primary health care and the functioning of the ophthalmic assistant;
11. Integration of the national programme for control of blindness with the other national health Programmes.
12. Eye bank organization

## **SKILLS**

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

1. Elicit a history pertinent to general health and ocular status;
2. Assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiottz tonometry, Staining of Corneal pathology, confrontation perimetry, Subjective refraction including correction of presbyopia and aphakia, direct ophthalmoscopy and conjunctival smear examination and Cover test;
3. Diagnose and treat common problems affecting the eye;
4. Interpret ophthalmic signs in relation to common systemic disorders,
5. Assist/observe therapeutic procedures such as subconjunctival injection, corneal conjunctival foreign body removal, carbolic cautery for corneal ulcers, Nasolacrimal duct syringing and tarsorrhaphy;
6. Provide first aid in major ophthalmic emergencies;
7. Assist to organize community surveys for visual check up;
8. Assist to organize primary eye care service through primary health centers.
9. Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.
10. Establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team.

### **(C) INTEGRATION**

The undergraduate training in Ophthalmology will provide an integrated approach towards other disciplines especially Neuro-sciences, ENT, General Surgery and Medicine.

## **LEARNING METHODS**

- || Total teaching hours: 100
- || Theory lectures: 70(4th,6th,7th term.)
- || Tutorials :30(7th term)
- || Clinical Postings Two clinical postings of 4weeks  
First in 4<sup>th</sup> semester and second in 6<sup>th</sup> semester and 3<sup>rd</sup> posting of 2 weeks in 7<sup>th</sup> term  
Bedside clinics 10 weeks of three hours per day 180 hours

## **SYLLABUS OF III MBBS IN OPHTHALMOLOGY**

### **INTRODUCTION ANATOMY & PHYSIOLOGY OF THE EYE COMMON DISEASE OF EYE.**

A) Conjunctiva.

Symptomatic conditions: - Hyperemia, Sub conjunctival Haemorrhage.

Diseases: - Classification of Conjunctivitis



- :- Mucopurulent Conjunctivitis
- :- Membranous Conjunctivitis Spring Catarrh.
- :- Degenerations :- Pinguecula and Pterigium
- B) Cornea:
  - Corneal Ulcers: Bacterial, Fungal, Viral, Hypopyon.
  - :- Interstitial Keratitis.
  - :- Keratoconus.
  - :- Pannus
  - :- Corneal Opacities.
  - :- Keratoplasty.
- C) Sclera :
  - :- Episcleritis.
  - :- Scleritis.
  - :- Staphyloma.
- D) Uvea
  - :- Classification of Uveitis
  - :- Gen. Etiology, Investigation and Principles Management of Uveitis.
  - :- Acute & Chronic Iridocyclitis.
  - :- Panophthalmitis.
  - :- End Ophthalmitis.
  - :- Choroiditis.
- E) Lens :
  - I) Cataract – Classification & surgical management of cataract.
    - :- Including Preoperative Investigation.
    - :- Anaesthesia.
    - :- Aphakia.
    - :- IOL Implant
- F) Glaucoma :
  - :- Aqueous Humor Dynamics.
  - :- Tonometry.
  - :- Factors controlling Normal I.O.P.
  - :- Provocative Tests.
  - :- Classifications of Glaucoma.
  - :- Congenital Glaucoma.
  - :- Angle closure Glaucoma.
  - :- Open Angle Glaucoma.
  - :- Secondary Glaucoma
- G) Vitreous :
  - :- Vitreous. Opacities.
  - :- Vitreous. Haemorrhage.
- H) Intraocular Tumours :
  - :- Retinoblastoma.
  - :- Malignant Melanoma
- I) Retina :
  - :- Retinopathies : Diabetic, Hypertensive Toxaemia of Pregnancy.
  - :- Retinal Detachment.
  - :- Retinitis Pigmentosa, Retinoblastoma
- J) Optic nerve :
  - :- Optic Neuritis.
  - :- Papilloedema.
  - :- Optic Atrophy.

K) Optics :

- :- Principles : V.A. testing Retinoscopy, Ophthalmoscopy.
- :- Ref. Errors.
- :- Refractive Keratoplasty.
- :- Contact lens, Spectacles

L) Orbit :

- :- Proptosis – Aetiology, Clinical Evaluation, Investigations & Principles of Management
- :- Endocrinal Exophthalmos.
- :- Orbital Haemorrhage.

M) Lids :

- :- Inflammations of Glands.
- :- Blepharitis.
- :- Trichiasis, Entropion.
- :- Ectropion.
- :- Symblepharon.
- :- Ptosis.

N) Lacrimal System :

- :- Wet Eye.
- :- Dry Eye
- :- Naso Lacrimal Duct Obstruction
- :- Dacryocystitis

O) Ocular Mobility :

- :- Extrinsic Muscles.
- :- Movements of Eye Ball.
- :- Squint : Gen. Aetiology, Diagnosis and principles of Management.
- :- Paralytic and Non Paralytic Squint.
- :- Heterophoria.
- :- Diplopia.

P) Miscellaneous :

- :- Colour Blindness.
- :- Lasers in Ophthalmology – Principles.

Q) Ocular Trauma : - Blunt Trauma.

- :- Perforating Trauma
- :- Chemical Burns
- :- Sympathetic Ophthalmitis

- 2) Principles of Management of Major Ophthalmic Emergencies :
- :- Acute Congestive Glaucoma.
  - :- C. Ulcer.
  - :- Intraocular Trauma.
  - :- Chemical Burns.
  - :- Sudden Loss of vision
  - :- Acute Iridocyclitis.
  - :- Secondary Glaucomas
- 3) Main Systemic Diseases Affecting the Eye :
- :- Tuberculosis.
  - :- Syphilis.
  - :- Leprosy.
  - :- Aids.
  - :- Diabetes.
  - :- Hypertension
- 4) Drugs :
- :- Antibiotics
  - :- Steroids.
  - :- Glaucoma Drugs.
  - :- Mydriatics.
  - :- Visco elastics.
  - :- Fluoresceine.
- 5) Community Ophthalmology :
- :- Blindness : Definition Causes & Magnitude
  - N.P.C.B. – Integration of N.P.C.B. with other health
  - :- Preventable Blindness.
  - :- Eye care.
  - :- Role of PHC's in Eye Camps.
  - :- Eye Banking.
- 6) Nutritional :- Vit. A. Deficiency.

## Clinical Ophthalmology cases To Be Covered MBBS

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History taking & Eye examination

Assessment of visual function.

Conjunctiva

- :- Pterigium.
- :- Pinguecula
- :- Conjunctivitis.
- :- Sub Conj. Haemorrhage.

Cornea

- :- Corneal Opacity .
- :- Corneal Ulcer.
- :- Corneal Abscess.
- :- Corneal Transplant

- Sclera            :- Scleritis, Epi Scleritis.  
                      :- Staphyloma.
- Uvea             :- Iridocyclitis.
- Lens             :- Cataract.  
                      :- Aphakia  
                      :- IOLs  
                      :- Complications

Glaucoma – Types, Signs, Symptoms & Management

Squint

- Lids              :- Entropion  
                      :- Ectropion  
                      :- Ptosis.

## OPHTHALMOLOGY - MBBS

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TUTORIALS	TOPICS	(Total 30 Hours)
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### SURGICAL TECHNIQUES

- Cataract            :- ECCE  
                          :- ICCE  
                          :- IOL Implantation  
                          :- Phaco-emulsification.
- Pterigium
  - Chalazion
  - Glaucoma
  - Foreign Body Removal
  - Enucleation
  - Keratoplasty
  - Basic of squint, L 10

Instruments

- OPD
- Operative
- Basic Examination and Diagnostic instruments  
     Tonometer, Sac Syringing, Slip Lamp.

## Optics

## - Lenses – Spheres, Cylinders, Prisms,

Pinhole, Slit, Maddox Rod & Maddox wing,  
Red & Green Glasses.

- IOLs
- Ophthalmoscopy
- Retinoscopy
- Contact Lenses
- Colour Vision

## Drugs

Miotics

Antibiotics

Antiglaucoma

Mydriatics

Steroids

Anti virals

NSAIDS

Anti Fungal

Viscoflastics

Pre-Op. & Post – Op.

Lecture held each term for VII and VIII term : Under graduate Theory Lectures:

Topics	(No.of)
1. Anatomy & Physiology	4
2. Optics	6
3. Conjunctiva	4
4. Cornea	6
5. Sclera	1
6. Uvea	4
7. Cataract	6
8. Glaucoma	6
9. Optic Nerve	4
10. Retina	1
11. Vitreous	4
12. Squint	4
13. Community Ophthalmology	2
14. Lids	4
15. Orbit	2
16. Lacrimal Appartus and Dry Eye	4
17. Miscellaneous & Others	2
<b>Total Lectures</b>	<b>70</b>
Tutorials	30
	100

# FINAL MBBS EXAMINATION IN OPHTHALMOLOGY

## Evaluation

### **Internal assessment: 20 ( Theory 10 +Practical 10)**

Plan of Internal assessment in Ophthalmology

- Marks of Internal Assessment should be sent to University before the commencement of Theory examination.
- Passing in internal assessment is essential for passing, as Internal assessment is separate head of passing. in examination.
- It will also be considered for grace marks as per existing rules
- Combined theory and practical of internal assessment will be considered for passing in internal assessment.
- Student will be allowed to appear for both theory and practical exam independent of marks obtained in internal assessment but he if fails in that head even after including the grace marks he will be declared **“Fail in that Subject”**

### ***Internal assessment in Theory -***

1. Examinations during semesters : This will be carried out by conducting two theory examinations during 4th and 6th semesters (50 marks each).

Total of 100 marks to be converted into 5 marks.( A/5)

2. Prelim examination : This shall be carried out during 9th semester. One theory papers of 40 marks as per university examination. Total of 40 marks to be converted into 5 marks. ( B/5)

Total marks of Internal assessment- Theory will be addition of A and B.

### ***Internal assessment in Practical***

Examinations at end of Clinical postings:

1. There will be practical examination at the end of each clinical posting of Ophthalmology.,4<sup>th</sup> and 6th semester. Each examination will be of 50 marks. Total of 2 examinations – 100 marks , will be converted to 5 marks.( C/5)

2. Prelim examination:

This will be conducted for 40 marks as per university pattern and marks will be converted to 5 (D/5).

Total marks of Internal of- of Practical will be addition of C and D.

## Evaluation **Methods - Theory, Practical and Viva**

### Pattern of theory examination including distribution of marks, questions and time

#### Pattern of theory examination including distribution of marks

1. There shall be one theory papers , carrying 40 marks
2. The paper will have two sections, A and B
3. The paper will be of 2.5 hours duration.
4. Section A will be MCQ in each paper. Section B will have to be written in separate answer sheets.

**THEORY** : 40 marks      Duration Two and half hours      (2.5) hours

*MCQ section A will be given to candidates at the beginning of the examination.*

*After 30 minutes Section A will be collected. Section B of paper will then be handed over to candidates.*

Section A :30 min. duration

Twenty eight single MCQs- 1/2 mark each :      14 marks

- || Separate paper
- || Single based response
- || MCQ will cover whole syllabus

Section B : 2 hours duration

- || Two long questions (LAQ) of 7 marks each :      14 marks  
(will contain some preclinical/paraclinical aspects)
- || Three /five (SAQ)short notes -4 marks each :      12 marks

**PRACTICAL :**      40 marks

Clinical : One long case :30 marks :30 min. for taking case and 10 minutes for assessment

- || Oral (viva voce) :10 marks:10 min. duration

- 1.Dark Room      5 marks
- 2.Instruments      5 marks

**Marks of VIVA will be added to Theory marks**

**It is compulsory to obtain 50% marks in theory.**

**It is mandatory to obtain 50% marks in theory+viva/oral.**

## **Course of OTORHINOLARYNGOLOGY**

These guidelines are based on MCI recommendations.

Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

### **1. GOAL**

The basic idea of undergraduate students teaching and training in otolaryngology

is that he /she should have acquired adequate knowledge and skills for optimally

Dealing with common disorders, emergencies in E.N.T .and basic principles of impaired hearing rehabilitation.

### **2. OBJECTIVES**

#### **(a) KNOWLEDGE**

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

- (1) Describe the basic pathophysiology and common Ear, Nose, Throat diseases and emergencies.
- (2) Adopt the rationale use of commonly used drugs, keeping in mind their side effects
- (3) Suggest common investigative methods and their interpretation.

#### **(b) SKILLS**

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

1. Examine and diagnose common ear ,nose ,throat problems including premalignant and malignant diseases of head and neck.
2. Manage ear ,nose ,throat (E.N.T)problems at the first level of care and be able to refer whenever and wherever necessary.
3. Assist/do independently basic E.N.T. procedures like ear syringing, Ear dressings, nasal packing removal of foreign bodies from nose, ear, throat.
4. Assist in certain procedures like tracheostomy, endoscopies.
5. Conduct CPR (cardiopulmonary resuscitation).
6. Be able to use auroscope, nasal speculum, tongue depressor, tuning fork and head mirror.

### **INTEGRATION**

The undergraduate training in E.N.T. will provide an integrated approach towards other disciplines especially neurosciences, ophthalmology and general surgery.

### **LEARNING METHODS**

1. Total teaching hours : 70
2. Theory lectures : 48(4th,6th,7th term.)
3. Tutorials : 22(7th term)
4. Clinical Postings Two clinical postings of 4weeks  
First in 4<sup>th</sup> semester and second in 6<sup>th</sup> semester  
Bedside clinics – 8 weeks of three hours per day 144 hours



## Course distribution and Teaching Programme

This is suggested programme and can vary at institute

Total 70 hours of teaching has to be done in ENT including Tutorials

Details of syllabus is given separately below after distribution as per semester

Theory lectures will be taken once a week and their distribution will be as below:

1. 4th term :16(nose and Paranasal sinuses/throat)	
a. NOSE AND P.N.S. :	10
b. THROAT AND NECK:	6
2. 6th term :16 (Remaining topics of throat, head and neck and / ear)	
a. THROAT AND NECK:	8
b. EAR :	8
3. 7 th term :	16 lectures
a. RECENT ADVANCES AND OTHERS :	4
b. EAR	12
Total Theory lectures	48

Tutorials 7<sup>th</sup> Term 22 hours teaching

**THEORY LECTURES:** 4th, 6th, 7th term (one hour per week)

Topics	No.of lectures
<u>Throat</u>	
• Anatomy/physiology	1
• Diseases of buccal cavity	1
• Diseases of pharynx	2
• Tonsils and adenoids	2
• Pharyngeal tumours and related Topics (trismus, Plummer. Vinson Syndrome etc.)	1
• Anatomy /physiology/examination Methods/symptomatology of larynx	2
• Stridor /tracheostomy	2
• Laryngitis /laryngeal trauma/ Laryngeal paralysis/ foreign body larynx/ Bronchus, etc.	2
• Laryngeal tumours	1
 Nose and paranasal sinuses	
• Anatomy /physiology/ exam.	
• Methods /symptomatology	2
• Diseases of ext. nose/cong. Conditions	1
• Trauma to nose/p.n.s/Foreign Body. / Rhinolith	1
• Epistaxis	1
• Diseases of nasal septum	1
• Rhinitis	1
• Nasal polyps/nasal allergy	1
• Sinusitis and its complications	1
• Tumours of nose and Para nasal sinuses	1

## EAR

• Anatomy /physiology		2
• Methods/methods of examination	1	
• Cong.diseases/ ext.ear /middle ear		1
• Acute/chronic supp. otitis media Aetiology, clinical features and its Management/complications	6	
• Serous/adhesive otitis media	1	
• Mastoid/middle ear surgery		1
• Otosclerosis/tumours of ear	2	
• Facial paralysis/Meniere"s disease		2
• Tinnitus /ototoxicity	2	
• Deafness/hearing aids/rehabilitation Audiometry	2	

## **FINAL MBBS EXAMINATION IN OTORHINOLARYNGOLOGY**

### **Evaluation**

#### **Internal assessment: 20 ( Theory 10 +Practical 10)**

- Marks of Internal Assessment should be sent to University before the commencement of Theory examination.
- Passing in internal assessment is essential for passing, as Internal assessment is separate head of passing. in examination.
- It will also be considered for grace marks as per existing rules
- Combined theory and practical of internal assessment will be considered for passing in internal assessment.
- Student will be allowed to appear for both theory and practical exam independent of marks obtained in internal assessment but he if fails in that head even after including the grace marks he will be declared **“Fail** in that Subject

#### Internal assessment in Theory -

- 1 **Examinations during semesters:** This will be carried out by conducting two theory examinations during 4th and 6th semesters ( 50 marks each). Total of 100 marks to be converted into 5 marks.( A/5)
- 2 **Prelim examination :** This shall be carried out during 7th semester.  
One theory papers of 40 marks as per university examination.  
Total of 40 marks to be converted into 5 marks. ( B/5)
- 3 **Total marks of Internal assessment-** Theory will be addition of A and B.

#### **Internal assessment in Practical**

##### **Examinations at end of Clinical postings:**

There will be practical examination at the end of each clinical posting of ENT, 4<sup>th</sup> and 6th semester) Each examination will be of 50 marks.  
Total of 2 examinations – 100 marks , will be converted to 5 marks.( C/5)

##### **Prelim examination:**

This will be conducted for 40 marks as per university pattern and marks will be converted to 5 (D/5).

Total marks of Internal assessment-of Practical will be addition of C and D.

### **Methods - Theory, Practical and Viva**

#### **Pattern of theory examination including distribution of marks, questions and time**

1. There shall be one theory paper , carrying 40 marks
2. The paper will have two sections, A and B
3. The paper will be of 2.5 hours duration.
4. Section A will be MCQ in each paper. Section B will have to be written in separate answer sheets.
5. MCQ section A will be given to candidates at the beginning of the examination. After 30 minutes Section A will be collected. Section B of paper will then be handed over to candidates.

**THEORY:** 40 marks      Duration: Two and half hours      (2.5) hours

#### **Section A :30 min. duration**

1. Twenty eight MCQs- 1/2 mark each: 14 marks
2. Separate paper Single based response
3. MCQ will cover whole syllabus

#### **Section B : 2 hours duration**

1. Two long questions (LAQ) of 7 marks each : 14 marks  
(will contain some preclinical / paraclinical aspects)
2. Three /five (SAQ)short notes - 4 marks each : 12 marks

#### **PRACTICAL : 40 marks**

##### **Clinical**

1. One long case :20 marks :30 min. For examination and 10minutes for assessment
2. One short case :10 marks :15 min. for examination and 5 minutes for assessment

##### **Oral (viva voce): 10 marks: 10 min. duration**

(Instruments, x-rays, specimens, audiograms)

▪ **Marks of VIVA will be added to Theory marks**

▪ **It is compulsory to obtain 50% marks in theory.**

▪ **It is mandatory to obtain 50% marks in theory+viva/oral. \_\_\_\_\_**

# OBSTETRICS & GYNAECOLOGY

These guidelines are based on MCI recommendations Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

## (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 & 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:

- ❑ Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it.
- ❑ Detect normal pregnancy, labour puerperium and manage the problems he/she is likely to encounter therein,
- ❑ List the leading causes of maternal perinatal morbidity and mortality.
- ❑ Understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilization and their complications.
- ❑ Identify the use, abuse and side effects of drugs in pregnancy, pre-menopausal and post-menopausal periods;
- ❑ Describe the national programme of maternal and child health and family welfare and their implementation at various levels.
- ❑ Identify common gynaecological diseases and describe principles of their management.
- ❑ 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 :

- 1.Examine a pregnant woman; recognize high-risk pregnancies AND make appropriate referrals
- 2.conduct a normal delivery, recognize complications and provide postnatal care;
3. Resuscitate the newborn and recognize the congenital anomalies
- 4.advise a couple on the use of various available contraceptive devices and assist in insertion and removal of intra-uterine contraceptive devices.
- 5.Perform pelvic examination, diagnose and manage common gynaecological problems including early detection of genital malignancies;
6. Make a vaginal cytological smear, perform a post coital test and wet vaginal smear examination for Trichomonas vaginalis, Moniliasis and gram stain for gonorrhoea;
- 7.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 coordination of family welfare programme for the national goal of population control.

## **(D) GENERAL GUIDELINES FOR TRAINING:**

1. attendance of a maternity hospital or the maternity wards of a general hospital including

(i) antenatal care

the management of the puerperium and

a minimum period of 5 months in-patient and out-patient training including family welfare planning

2. 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.
3. during this period, the student shall conduct at least 10 cases of labour under adequate supervision and assist 10 other cases.
4. 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:

(a) 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.

(b) 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

## **LEARNING METHODS**

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- ☐ Lectures - 130 hours
- ☐ Tutorials and revision - 170 hours
- ☐ Bedside clinics - 468 hours

### DIDACTIC LECTURES

SEMESTER	HOURS/WEEK	TOTAL
4	1 / WEEK	17
6	3 / WEEK	48
7	3 / WEEK	48
8	1 / WEEK	17
TOTAL		130

### B) CLINICAL DEMONSTRATIONS, PRACTICAL DEMONSTRATIONS,

### SEMINARS ETC.

SEMESTER	HOURS/WEEK	TOTAL
8	4 / WEEK	68
9	6 / WEEK	102
TOTAL		170

=====	
TOTAL TEACHING HOURS	300

### **Suggested lecture program**

#### **Distribution of syllabus in respective semesters**

This is suggested programme and can vary at institute

Total 300 hours of teaching has to be done in OB GY including Tutorials

Details of syllabus is given separately below after distribution as per semester

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### **4th Semester :OBSTETRICS :**

1. Applied anatomy of female genital tract.
2. Development of genital tract
3. Physiology of menstruation
4. Puberty and menopause
5. Physiology of ovulation / conception / implantation.
6. Early development of human embryo.
7. Structure, function and anomalies of placenta.
8. Physiological changes during pregnancy / diagnosis of pregnancy.
9. Antenatal care, nutrition in pregnancy, detection of high-risk pregnancy.
10. Normal labour - Physiology, mechanism, clinical course and management, pain relief in labour.
11. Normal puerperium and breast-feeding.
12. Examination and care of newborn.
13. Contraception - Introduction and basic principles
14. Maternal mortality and morbidity, perinatal mortality and morbidity.  
National health  
Programme - safe-motherhood, reproductive and child health, social obstetrics.

## 6<sup>TH</sup> Semester: GYNAECOLOGY & FAMILY PLANNING

### **GYNAECOLOGY**

1. Development of genital tract, congenital anomalies and clinical significance, Chromosomal abnormalities and intersex.
2. Physiology of Menstruation, Menstrual abnormalities - Amenorrhoea, Dysmenorrhoea, Abnormal Uterine Bleeding, DUB.
3. Puberty and its disorders, Adolescent Gynaecological problems.
4. Menopause & HRT.
5. Infections of genital tract, Leucorrhoea, Pruritus vulvae, Vaginitis, Cervicitis, PID, Genital TB, Sexually transmitted infections including HIV infection.
6. Benign & Malignant tumours of the genital tract.  
Leiomyoma, carcinoma cervix, carcinoma endometrium, chorio carcinoma, ovarian tumors. Benign & Malignant Lesions of Vulva
7. Radiotherapy & Chemotherapy in Gynaecology.
8. Other gynaecological disorders - Adenomyosis, Endometriosis
9. Genital Prolapse, Genital Tract displacement,
10. Urinary disorders in Gynaecology, Perineal tears, Genital Fistulae, RVF & VVF.

### **FAMILY PLANNING :**

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1. Demography and population Dynamics.
2. Contraception - Temporary methods.  
Permanent methods.
1. MTP Act and procedures of MTP in first & second trimester.
2. Emergency contraception. :

## 7<sup>TH</sup> Semester : OBSTETRICS & NEWBORN

1. Complications in early pregnancy.



- Hyperemesis gravidarum / abortion / ectopic pregnancy / gestational trophoblastic disease.
2. Obstetrical complications during pregnancy.  
APH - Accidental hemorrhage. Placenta praevia.
3. Poly hydramnios / oligohydramnios, multifetal pregnancy.
4. Medical disorders in pregnancy.  
Anemia, Heart disease. Hypertensive disorder, PIH and Eclampsia, Diabetes, jaundice, pulmonary disease in pregnancy.
5. Infections in pregnancy  
Urinary tract diseases, sexually transmitted infections including HIV, malaria, TORCH etc.
6. Gynaecological and surgical conditions in pregnancy.  
Fibroid with pregnancy, ovarian tumours, acute abdomen, genital prolapse.
7. High risk pregnancy, pre-term labour, post term pregnancy, IUGR, IUFD, pregnancy wastages, Rh incompatibility, post caesarean pregnancy.
8. Induction of labour.
9. Abnormal position & presentation : Occipito posterior, Breech, Transverse, Face & Brow, Compound, Cord Presentation and prolapse.
10. Abnormal labour - abnormal uterine action, CPD.  
Obstructed labour, uterine rupture.
11. Third stage complications - Retained placenta, PPH, Shock, Uterine inversion, Fluid Embolism.
12. Puerperial Sepsis and Other Complications in puerperium.
13. Evaluation of Foetal Health during pregnancy and labour.
14. Drugs used in obstetric practice.
15. Operative procedures in Obstetrics : Caesarean Section, Instrumental Vaginal Delivery. Forceps, Vacuum,
16. Maternal Mortality and morbidity, Perinatal mortality and morbidity. National program - safe motherhood, reproductive and child health , Social Obstetrics.

#### NEW BORN :

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1. Examination and care of new born & low birth weight babies.
2. Asphyxia and neonatal resuscitation.
3. Diagnosis of early neonatal problems.
4. Birth injuries, jaundice, infection.
5. Anencephaly & Hydrocephalus and other Congenital Anomalies of fetus.

## **8<sup>TH</sup> Semester : PREVENTIVE ONCOLOGY**

1. Preventive Oncology

2. Principles of gynaecological surgical procedures
3. Pre and post operative care in Gynaecology
4. Ultrasonography and Radiology, in Gynaecology
5. Endoscopy in in Gynaecology
6. Drugs and hormones in Gynaecology
7. Surgical procedures in obstetrics
8. Maternal mortality
9. Perinatal mortality
10. Recurrent pregnancy wastages
11. High risk pregnancy
12. Rural obstetrics
13. Drugs in Pregnancy
14. Drugs in obstetric practice

In addition, integrated teaching with other departments like anatomy, physiology, biochemistry, pathology, microbiology, Forensic Medicine and Preventive and Social medicine to be organized for selected topics.

## **LIST OF TOPICS INTEGRATED TEACHING: 8<sup>TH</sup> TERM**

1. Development of genital tract - any malformations  
of genital tract and their clinical significance - Anatomy
2. Fetal physiology - fetal circulation Physiology
3. fetal malformations - genesis- Embryology
4. CIN Pathology
5. ARF Physiology Medicine
6. Coagulation failure Pathology Medicine
7. Diabetes, heart disease Medicine
8. USG Radiology
9. Infections in pregnancy Microbiology
10. Medico-legal aspects Forensic Medicine
11. Nutrition in pregnancy and lactation PSM
12. Evidence based obstetrics PSM
13. Drugs in pregnancy Pharmacology

## **SCHEME FOR EXAMINATION FOR FINAL MBBS**

### **EXAMINATION IN OBSTETRICS AND GYNAECOLOGY**

*Methods – Internal assessment, Theory, Practical and Viva*

- **Internal assessment: 40 ( Theory 20 +Practical 20)**
  - Marks of Internal Assessment should be sent to University before the commencement of Theory examination.
  - Passing in internal assessment is essential for passing ,as Internal assessment is separate head of passing. in examination.
  - It will also be considered for grace marks as per existing rules
  - Combined theory and practical of internal assessment will be considered for passing in internal assessment.
  - Student will be allowed to appear for both theory and practical exam independent of marks obtained in internal assessment but he if fails in that head even after including the grace marks he will be declared **“Fail** in that Subject”

#### **Internal assessment in Theory -**

**Examinations during semesters** : This will be carried out by conducting two theory examinations during 6th and 8th semesters ( 100 marks each). Total of 200 marks to be converted into 10 marks.( A/10)

**Prelim examination** : This shall be carried out during 9th semester. Two theory papers of 40 marks each as per university examination. Total of 80 marks to be converted into 10 marks. ( B/10)

Total marks of Internal assessment- Theory will be addition of A and B.

## **Internal assessment in Practical**

### **Examinations at end of Clinical postings:**

There will be practical examination at the end of each clinical posting of OBGY. Each examination will be of 50 marks. Total of all exams marks will be converted to 10 marks.( C/10)

### **Prelim examination:**

This will be conducted for 60 marks as per university pattern and marks will be converted to 10 (D/10). Total marks of Internal assessment- Practical will be addition of C and D.

### **Evaluation Methods - Theory, Practical and Viva**

#### **Pattern of theory examination including distribution of marks, questions and time**

##### **Pattern of theory examination including distribution of marks**

1. There shall be two theory papers - Paper I and II, carrying 40 marks each.
2. Each paper will have three sections, A , B and C. Each paper will be of 2.5 hours duration.
3. Section A will be MCQ in each paper. Section B will have SAQ and Section C LAQ answer sheet.
4. MCQ section A will be given to candidates at the beginning of the examination.
5. After 30 minutes Section A will be collected. Section B & C of paper will then be handed over to candidates

### **PAPER I**

Topics - Obstetrics including social obstetrics and newborn care

#### **.Section A :30 min. duration**

- Twenty eight MCQs- /2 mark each : 14 marks
- Single based response
- MCQ will cover whole syllabus of Paper I

#### **Section B & C : 2 hours duration**

**Section B** - Three /five (SAQ)short notes -4 marks each 12 marks

○ **Section C** - Two long questions (LAQ) of 7 marks each 14 marks

(will contain some preclinical/Para clinical aspects)

## **PAPER II :**

Topics :Gynaecology, Family Welfare and Demography -

### **Section A :30 min. duration**

- || Separate paper
- || Twenty eight MCQs- 1/2 mark each 14 marks
- || Single based response
- || MCQ will cover whole syllabus of Paper II

### **Section B & C : 2 hours duration**

**Section B** - Three /five (SAQ)short notes -4 marks each 12marks

- || **Section C** - Two long questions (LAQ) of 7 marks each 14 marks
- (will contain some preclinical/Para clinical aspects)

## **Scheme Of Practical & Oral Examination For Obstecrics & Gynaecology**

### **PRACTICAL : Total – 60 Marks**

#### 1) LONG CASE : 40 Marks

- A) History 10 Marks
- B) Clinical Exam 10 Marks
- C) Investigations & diagnosis 10 Marks
- D) Management 10 Marks

#### 2) SHORT CASE : 10 Marks

- A) Presentation 05 Marks
- B) Discussion 05 Marks

#### 3) FAMILY PLANNING 10 Marks

**Total : 60 Marks**

#### 4) ORAL / VIVA 20 Marks

- A) Obstetric Viva 10 Marks
- B) Gynaecology Viva 10 Marks

**TOTAL MARKS FOR PRACTICAL & ORAL (60+20) = 80 Marks**

**Marks of VIVA will be added to Theory marks**

**It is mandatory to obtain 50% marks in theory+viva/oral.**

**REVISED INTERNAL ASSESSMENT EXAMINATION SCHEME w.e.f. JUNE 2007 EXAMINATION**

**YEAR: - Third (I) MBBS**

SN.	Subject	1 <sup>st</sup> Term End			2 <sup>nd</sup> Term End			Preliminary Examination		
		Semester	Theory	Practical	Semester	Theory	Practical	Semester	Theory	Practical
			(A)	(B)		(C)	(D)		(E)	(F)
1.	PSM	IV	60	20	VI	60	20	VII	120	40
2.	ophthalmology	VI	40	40	-	-	-	VII	40	40
3.	ENT	VI	40	40	-	-	-	VII	40	40

**(B) Calculation Method:-**

- I) For PSM Theory Marks to be send to the University out of 20  $= \frac{(A)+(C)+(E)}{12} = \frac{60+60+120}{12} = \frac{240}{12} = 20$
- II) For PSM Practical Marks to be send to the University out of 20  $= \frac{(B)+(D)+(F)}{4} = \frac{20+20+40}{4} = \frac{80}{4} = 20$
- III) For Ophthalm & ENT Theory Marks to be send to the University out of 10  $= \frac{(A)+(C)+(E)}{8} = \frac{40+0+40}{8} = \frac{80}{8} = 10$
- IV) For Ophthalm & ENT Practical Marks to be send to the University out of 10  $= \frac{(B)+(D)+(F)}{8} = \frac{40+0+40}{8} = \frac{80}{8} = 10$

# **REVISED INTERNAL ASSESSMENT EXAMINATION SCHEME w.e.f. JUNE 2007 EXAMINATION**

**YEAR: - Third (II) MBBS**

SN.	Subject	1 <sup>st</sup> Term End			2 <sup>nd</sup> Term End			Preliminary Examination		
		Semester	Theory	Practical	Semester	Theory	Practical	Semester	Theory	Practical
			(A)	(B)		(C)	(D)		(E)	(F)
1.	Medicine	VI	60	60	VIII	60	60	IX	120	120
2.	Surgery	VI	60	60	VIII	60	60	IX	120	120
3.	Obstetrics/Gynecology	VI	40	40	VIII	40	40	IX	80	80
4.	Pediatrics	VI	20	20	VIII	20	20	IX	40	40

## **(B) Calculation Method:-**

- |  |  |
|--|--|
| I) For Medicine & Surgery Theory Marks to be send to the University out of 30        | $= \frac{(A)+(C)+(E)}{8} = \frac{60+60+120}{8} = \frac{240}{8} = 30$ |
| II) For Medicine & Surgery Practical Marks to be send to the University out of 30    | $= \frac{(B)+(D)+(F)}{8} = \frac{60+60+120}{8} = \frac{240}{8} = 30$ |
| III) For Obstetrics/Gynecology Theory Marks to e send to the University out of 20    | $= \frac{(A)+(C)+(E)}{8} = \frac{40+40+80}{8} = \frac{160}{8} = 20$  |
| IV) For Obstetrics/Gynecology Practical Marks to be send to the University out of 20 | $= \frac{(B)+(D)+(F)}{8} = \frac{40+40+80}{8} = \frac{160}{8} = 20$  |
| V) For Pediatrics Theory Marks to be send to the University out of 10                | $= \frac{(A)+(C)+(E)}{8} = \frac{20+20+40}{8} = \frac{80}{8} = 10$   |
| VI) For Pediatrics Practical Marks to be send to the University out of 10            | $= \frac{(B)+(D)+(F)}{8} = \frac{20+20+40}{8} = \frac{80}{8} = 10$   |

**Note:-** For Surgery and Orthopedics Scheme will be as follows, however these marks should be combined and send to the University out of 30.

SN.	Subject	1 <sup>st</sup> Term End			2 <sup>nd</sup> Term End			Preliminary Examination		
		Semester	Theory	Practical	Semester	Theory	Practical	Semester	Theory	Practical
			(A)	(B)		(C)	(D)		(E)	(F)
1.	Surgery	VI	48	48	VIII	48	48	IX	96	96
2.	Orthopedics	VI	12	12	VIII	12	12	IX	24	24



## **SECTION C :**

### **INTERNSHIP PROGRAMME**

Internship discipline related and curriculum in family welfare shall be according to norms laid down by Medical Council of India

## **SECTION D :**

### **CURRICULAI FOR THE FAMILY WELFARE :**

It shall be as per M.C.I. and is included in respective subjects.