

	University VIVA	: 10 Marks
	Internal assessment	: 10 marks
	Total	: 60 Marks
Practical	University	: 30 Marks
	Internal assessment	: 10 marks
	Total	: 40 Marks
Grand total		: 100 Marks

MEDICINE AND ITS ALLIED SPECIALITIES

MEDICINE

A. GOAL

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

B. OBJECTIVES (1)

Knowledge

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

- Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases;
- Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interaction, indications and contraindications;
- Propose diagnostic and investigative procedures and ability to interpret;
- Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral of required.;
- Recognize geriatric disorders and their management
- Approach to terminal phase, end of life care, bereavement
- Current Laws relevant to end of life care decisions – withholding, withdrawing artificial life interventions

2. Skills

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

- Develop clinical skills (history taking, clinical examination and other instruments of examination) in various common medical disorders and emergencies.
- Refer a patient to secondary and/or tertiary level of health care after having instituted primary care.
- Perform & interpret simple routine investigation like hemogram, stool, urine, sputum and biological examinations

- d. Assist the common bed-side investigate procedures like pleural tap, lumbar puncture, bone marrow aspiration/biopsy and liver biopsy.
 - e. Learn to Communicate with patients regarding common Medical problems, investigations and treatment .
 - f. Learn to address Common ethical issues in medical ward and OPD .
 - g. * Student should be aware of the rights of the patient, issues like autonomy, consent etc
- Integrated Care for chronic diseases– Assess, advice, agree, arrange, assist
 - Principles of managing symptoms of advanced progressive diseases
 - Palliative Care for advanced cardiac failure, renal failure
 - Palliative Care for breathlessness, Nausea/Vomiting, Delirium

Palliative care for neurological disorders

3. Integration

- a. With community medicine and physical medicine and rehabilitation to have the knowledge and be able to manage important current national health programs, also to be able to view the patient in his/her total physical, social and economic milieu:
- b. With other relevant academic input which provide scientific basis of clinical medicine eg: anatomy, physiology, biochemistry, microbiology, pathology and pharmacology.

C. DETAILED SYLLABUS

DETAILS OF THE COURSE

Duration of the course	:5 semesters – III, V, VI, VIII & IX
Total number of theory	: 300
Lectures	:100

Innovative sessions	: 200
Practicals	: Clinical posting as per schedule attached
(Project work, Seminars, Structured	Integrated teaching, Formative evaluation, Revision)

LECTURES

1. Molecular and Genetic factors in disease

- a. Basics of cell and molecular biology; DNA, RNA, Genes, mitochondria, cell membrane, receptors; protein production and degradation
 - b. Cell division, cell death
 - c. Patterns of inheritance and common disorders, investigations, counseling
 - d. Stem cell therapy, gene therapy, new horizons
Exercises : Eg. The cell ; a family tree for various common inherited diseases
2. Nutrition and nutritional disorders
- a. Macronutrients, dietary recommendations
 - b. Micronutrients-vitamins, minerals, deficiencies & excess
 - c. Energy balance- body fat distribution, regulation, needs, responses to over nutrition and under nutrition, assessment of nutritional status
 - d. Assessment & Management of Obesity & under nutrition
 - e. Nutritional support in hospital, in pregnancy & lactation
Exercises: eg western vs Indian (also different parts of India) meals ; role of fiber in diet
3. Environmental and Occupational problems
- a. Environmental effects on health, alcohol, smoking, air pollution, radiation hazards, Temperature regulation and extremes of temperature, high altitude, under water, problems of air travel, epidemics- Triage & Resuscitation
 - b. Hanging, drowning, electrical injuries; lightning injury
 - c. Fluorosis
 - d. Food hygiene and poisoning
Exercises: eg how to plan an epidemiological study; Minamata disease, others
4. Poisoning
- a. Evaluation of a patient with suspected poisoning,
 - b. Sedatives, antidepressants, antipsychotics;
 - c. insecticides, pesticides, rodenticides- organophosphorus, organochlorides, Rat poison, Paraquat
 - d. Odollum
 - e. Acid & alkali, Ethyl & Methyl alcohol
 - f. Bites of venomous animals, including snakes, spiders, scorpion, wasps
 - g. Evaluation of a patient with suspected envenomation, general principles of management
Exercises: Eg, Common poisons in the region, presentations, management; Composition of common Tablets/ capsules/ household remedies/ chemicals around the house and workplace- with measures to eliminate the poison
5. Immunological factors
- a. Anatomy, physiology of the immune system; B & T lymphocytes, immunoglobulin, immune reaction

- b. The inflammatory response- physiology, pathology, presentations, assessment
 - c. Autoimmune diseases- pathology, susceptibility, assessment
 - d. Immune deficiency- presentation, syndromes
 - e. Anaphylaxis, urticaria, angioedema, transplantation immunology
6. Infectious disease
- a. Viral infections-
 - i. with exanthem: measles, chicken pox, herpes zoster, herpes simplex 1 & 2, dengue, hand foot and mouth disease
 - ii. Without exanthem- influenza, mumps
 - iii. With rheumatological involvement- Chikungunya
 - iv. With GI, Respiratory, Neurological involvement
 - b. Bacterial infections-
 - i. Common gram positive infections-overview, then specifics- skin, soft tissue, bone infections, cellulitis,
 - ii. Common gram negative infections- overview, then specifics
 - iii. Enteric infections. Salmonella including typhoid, paratyphoid, bacillary dysentery-*shigella*, different causes of food poisoning, cholera, *C. Difficile*,
 - iv. Respiratory infections- Sinusitis, bronchitis, diphtheria, pneumonias, pneumocystis carinii, chlamydia
 - v. Mycobacterial infections- tuberculosis, Hansen's; atypical Mycobacteria
 - vi. HIV infection, AIDS
 - 1. Clinical presentations, investigations, diagnosis of HIV infections
 - 2. The importance of pre-test & post- test counseling, breaking bad news
 - 3. Natural history and Staging of HIV
 - 4. Antiretroviral therapy, Preventing opportunistic infections
 - vii. CNS-
 - 1. Meningitis -viral, bacterial,tuberculous, fungal, how to differentiate, management principles ; Chemoprophylaxis for purulent meningitis
 - 2. Parenchymal –viral encephalitis, Rabies, Poliomyelitis,H.zoster,SSPE
 - 3. Cerebral abscess, neurosyphilis
 - viii. Diseases caused by bacterial toxins- tetanus, botulism
 - ix. Rickettsial fevers- typhus
 - x. Protozoa infections. Malaria, Leishmaniasis, Amoebiasis, Giardiasis
 - xi. Helminthic infestations Ancylostomiasis, filariasis (Luminal & tissue nematodes)
 - xii. Tape worms
 - xiii. Fungal infections.

1. Superficial- candidiasis
 2. Subcutaneous- mycetoma
 3. Systemic-aspergillosis, cryptococcosis, histoplasmosis, coccidiomycosis
 - c. General principles of use of antimicrobial agents, abuse of antimicrobials; antimicrobial resistance; antiviral, antifungal agents
 - d. Approach to a patient with suspected infection, sepsis, eosinophilia, PUO
 - e. Adult immunisation
7. Fluid and Electrolytes
- a. Water & Electrolyte balance, hypovolemia, dehydration- assessment, correction
 - b. disorders of Sodium, Potassium balance, acidosis, alkalosis
- Exercises:**
8. Renal medicine
- a. Functional anatomy, Structure & function of the Nephron, Clinical assessment of the Kidney & Urinary tract; significance of examining the urine, assessing GFR, proteinuria, investigating for renal vascular disease, infections of the urinary tract
 - b. Glomerular vs tubular disease, Nephrotic syndrome, acute kidney injury- causes, complications, management; Chronic kidney disease- causes, complications, including anemia, bone disease, management- conservative, preventing deterioration; renal replacement therapy, renal transplantation- indications, problems, costs
 - c. Pregnancy and renal disease, drugs and the kidney
- Exercises:**
9. CVS
- a. Functional anatomy & physiology, cardiac Cycle, Ventricular function, Biomarkers, Clinical assessment of the heart and circulation- ECG, chest Xray, basics of angiography
 - b. Coronary circulation, coronary artery disease, its complications, angina, myocardial infarction, management
 - c. Conducting system of the heart, abnormalities of cardiac rate and rhythm, principles of identification & basic management
 - d. Acute Rheumatic fever, rheumatic heart disease, assessment, complications, management options, infective endocarditis
 - e. Congenital heart disease, assessment, complications, management options
 - f. Myocardial disease. Myocarditis, cardiomyopathy
 - g. Acute & Chronic pericarditis
 - h. Deep vein thrombosis, pulmonary embolism, management
- Exercises: Cardiac cycle, normal ECG, ECG in Myocardial infarction, atrial fibrillation, complete heart block**

10. Respiratory System

- a. Functional anatomy & physiology, Bronchopulmonary segments, Clinical assessment of the lungs, control of breathing, investigations - pulmonary function tests, imaging
- b. Bronchial Asthma, bronchitis, bronchiectasis, Lung abscess, bronchogenic Ca, obstructive sleep apnoea
- c. COPD, cor pulmonale
- d. Pleural diseases
- e. Interstitial Lung disease
- f. Respiratory failure- assessment, management

Exercises: Bronchopulmonary segments, PFTs, clinical importance

11. GIT

- a. Functional anatomy & physiology, Digestion, absorption, gut hormones, Clinical assessment & investigations of the GIT,
- b. Functional anatomy & physiology, Clinical assessment & investigations of the hepatobiliary system; interpreting Liver Function tests
- c. Dysphagia, Gastroesophageal reflux, peptic ulcer disease, gastric Ca, upper GI Bleeding,
- d. Symptoms and signs, investigations of Diseases of the small & large gut- diarrhea, malabsorption, lactose intolerance, infections of the small gut, irritable bowel syndrome, ischemic of the gut
- e. Inflammatory bowel disorders, diverticulosis of the large gut, tumors of the large gut, constipation
- f. Acute & chronic pancreatitis, gallstones, other GB diseases
- g. Acute and chronic Hepatitis
- h. Chronic liver disease
- i. Assessment of a patient with jaundice, ascites, Acute liver failure, hepatic encephalopathy, portal hypertension, portal vein thrombosis, chronic liver disease
- j. Alcoholic, non-alcoholic liver disease, autoimmune liver disease, primary & secondary malignancy of the liver
- k. Drug- induced liver disease
- l. Inherited liver diseases- Wilson's, haemochromatosis, Gilbert's
- m. Pregnancy & the liver
- n. Liver transplantation

Exercises: Liver function tests- various abnormalities; abnormalities in ascitic

fluid

12. Hematology

- a. Functional anatomy & physiology, Haemopoiesis, Clinical assessment & investigations of the haemopoietic system; Iron, B12, Folate absorption, abnormalities
- b. Interpreting a haemogram
- c. Bleeding & Clotting disorders, Tests of coagulation, Bleeding & clotting disorders,
- d. Thrombotic disorders
- e. Anemia- presenting features, assessment, investigations, management
- f. Different types of anemia, Fe deficiency, B12, Folate, Hemolytic, anemia of chronic disease
- g. Haemoglobinopathies- assessment, sickle cell disease, thalassemias
- h. Polycythemia- Primary & Secondary, presenting features, assessment, management
- i. High and low White cell counts- clinical assessment, investigations, management
- j. High and low platelet counts- clinical assessment, investigations, management
- k. Pancytopenia
- l. Hematological malignancies, lymphoma, Lymphadenopathy, splenomegaly
- m. Paraproteinemias
- n. Blood products, transfusions, adverse effects, safe transfusions, stem cell transplantation

Exercises: Abnormalities in a Haemogram, blood smear

13. Rheumatology

- a. Presenting problems , Clinical examination, assessment, investigations of rheumatological disease: Osteoarthritis, Rheumatoid arthritis, crystal arthropathy, SLE, systemic sclerosis, seronegative spondyloarthropathies, reactive arthritis, connective tissue diseases, vasculitis
- b. Non-Pharmacological & pharmacological therapy of rheumatological disease- principles, problems, side effects
- c. Osteoporosis, vitamin D deficiency

Exercises: abnormalities in the joint fluid

14. Endocrinology

- a. Organization of the endocrine system, functional anatomy & physiology, clinical presentations, overview of investigations
- b. Disorders of Pituitary function
- c. Thyroid gland-anatomy, physiology, abnormalities (hyper & Hypo function, thyroiditis)

- d. Adrenal glands – functional anatomy, physiology, assessment, Cushing's, Addison's, Hyperaldosteronism, Pheochromocytoma
- e. Calcium metabolism, hyperparathyroidism, hypercalcemia, hypocalcemia, tetany
- f. Diabetes mellitus
 - i. Clinical presentations, examination; diabetes mellitus Types 1&2 , other forms
 - ii. Diagnosis of diabetes mellitus, complications
 - iii. Managing diabetes: Life style management, Diet and Drugs in the management of diabetes mellitus, oral medications, insulin, incretin based therapy
 - iv. Hypoglycemia, diabetes in special situations
 - v. Managing the complications of diabetes mellitus

Exercises: Inter-relation of the Pituitary with other endocrine organs; Thyroid function tests; diagnosing diabetes mellitus; identification & management of the complications of Diabetes; differences in management of type 1 and Type 2 diabetes

15. Nervous system

- a. Overview of the nervous system, basic anatomy & blood supply of the Brain, csf production & circulation, abnormalities, the need for localization; the value of history and physical examination, overview of tests available
- b. Headache syndromes, migraine, seizures, anticonvulsant therapy
- c. Clinical features of Meningitis –how to differentiate & manage the various types,
- d. Intracranial space occupying lesions- including subdural haemorrhage, the need to identify and treat early
- e. Delirium, Coma, brain death
- f. Strokes : infarction vs hemorrhage, assessment, broad principles of localization , the need for urgent intervention when possible
- g. Amnesia, dementias, neurodegenerative disorders
- h. Demyelinating disorders, paraneoplastic neurological disorders
- i. Parkinson's disease, Motor neurons disease, CNS Tuberculosis
- j. Anatomy & Overview of diseases of the spinal cord, transverse myelitis, Syringomyelia, tumors,
- k. Polyneuropathy, Guillain Barré syndrome, Peripheral neuropathy
- l. Myasthenia gravis, other myasthenia syndromes, disorders of muscle

Exercises: The structure of the Neuron; clinical differences between upper motor and lower motor neurone lesions; differentiating hemispheric from brainstem lesions; differentiating spinal cord, peripheral nerve and muscle disease

16. Medical disorders of Pregnancy

- a. Prenatal genetic testing, infections in the antenatal period, prescribing in pregnancy, air travel
- b. Gestational diabetes mellitus
- c. Endocrine disorders- pituitary, thyroid, adrenal,
- d. Liver, kidney, cardiac, respiratory, neurologic disease , venous thromboembolism in pregnancy

17. Critical care

- a. Severe sepsis, shock, Multi-organ failure
- b. Management of acute LVF, acute severe asthma, acute coronary syndrome
- c. Cardiopulmonary resuscitation, BLS, ACLS, when / whether to resuscitate
- d. Disseminated intravascular coagulation
- e. Coma, hepatic encephalopathy
- f. Bioterrorism, disaster management , mass casualty, the concept of triage.

18. Ageing

- a. Biology of ageing, comprehensive assessment, Frailty, problems in old age- falls, delirium, dizziness, urinary incontinence, cardiac, GI, neurological problems
- b. How much to investigate? How aggressive must one be?
- c. Prescribing in the elderly
- d. Rehabilitation

19. Pain and Palliative care

- a. Assessment and measurement of pain; psychological aspects of chronic pain
- b. Management of pain, breathlessness, cough, nausea, vomiting, dehydration, GI obstruction, weight loss, lassitude, anxiety, depression
- c. How to break bad news, how to prepare a person to face terminal disease, dying

20. Clinical Pharmacy and Therapeutics

- a. General principles of prescribing, rational use of drugs, monitoring drug therapy
- b. Drug interactions, Adverse drug reactions,

TEXT BOOKS RECOMMENDED

1. Principles and practice of Medicine by Davidson
2. Davidsons clinical cases by Mark W Stratchan and S.K.Sharma
3. Text Book of Medicine by Kumar and Clark
4. Text Book of Medicine by Dr.K.V.Krishnadas
5. Clinical Medicine by Dr.K.V.Krishnadas
6. Macleod's clinical examination
7. Hutchison's textbook of clinical methods
8. Hari's Essentials of Clinical Medicine by Dr. P.Baburaj
9. Introduction to clinical methods in medicine – 2nd edition edited by Dr. V.K Lakshmanakumar

REFERENCE TEXT BOOKS

1. Harrison's Principles of Internal Medicine
2. Text Book of Medicine Cecil & Loeb
3. API textbook of Medicine
4. Oxford Textbook of Medicine
5. Clinical Medicine-Vakil and Golwala
- 6.

Psychiatry 20Hrs

- Classification and aetiological factors in psychiatric disorder
- Delirium and Dementia
- Schizophrenia
- Bipolar affective disorders
- Depressive disorders
- Anxiety disorders and OCD
- Stress and adjustment disorders
- Psychiatric presentations in general practice
- Personality disorders
- Substance use disorders
- Attempted suicide and suicide risk
- Mental retardation and learning disability
- Autism spectrum disorder and ADHD
- Sexual disorders
- Breaking bad news and crisis intervention
- Treatment of psychiatric disorders
- Basic communication and counseling skills
- Rehabilitation
- Legal aspects of psychiatry

DERMATOLOGY LECTURES -30 HOURS

- Structure and function of skin
- Infections of Skin
- Care of skin, preventing and managing bed sore in a bed ridden patient
- Eczematous diseases
- Bullous skin diseases
- Connective Tissue Diseases
- Pigmentary diseases
- Papulo squamous diseases
- Neoplastic diseases of skin
- Lesions of skin appendages
- Adverse drug reactions
- Venereal diseases

- Leprosy
 - Stigma in medicine and its management in diseases like HIV,STD, Leprosy
- Communicating with dermatology/STD/Leprosy patients

RADIOLOGY LECTURES (INCLUDING RADIOTHERAPY)-20 HOURS

Production of X-rays
Biological changes Skeletal
Radiology Chest &
Mediastinum
Gastrointestinal system
Hepatobiliary system
Genitourinary system
Neuroimaging modalities
Emergency Radiology

Respiratory Medicine Lectures 20 hrs

Evaluation of cough
Evaluation of dyspnoea
Investigations in pulmonary medicine
Bronchial Asthma
COPD
Pneumonia
Lung abscess
Tuberculosis pathogenesis
Diagnosis & management
Control program
Pleural effusion
Empyema
Neoplasms of lung
Environmental & occupational lung diseases
Sleep disordered breathing
Pulmonary hypertension
Pulmonary embolism
Interstitial lung diseases
Basic procedures
Conservative management of irreversible breathlessness in terminally ill patients.

Home Oxygen therapy – Pros and cons; considerations
before prescribing ambulatory oxygen

INNOVATIVE SESSIONS

(Project work, Seminars, Structured discussion, integrated teaching, Formative evaluation, Revision and Morning sessions)

A seminar on Pain – acute, chronic, classification, management, concept of total pain Controlled substances – essential analgesics Pain relief as Human Right

I. Common symptoms of disease/clinical approach to

- a) Pain
- b) Fever
- c) Respiratory symptoms
- d) Pallor, Jaundice, Oedema
- e) GI symptoms(Chronic constipation as a seminar – practical skills on high up enema)
- f) Haematemesis, Melaena, Bleeding PR/ Haematochezia
- g) Urinary symptoms
- h) Neurological symptoms : headache, dizziness, vertigo, weakness, sensory loss
- i) Musculoskeletal symptoms : joint swelling,
- j) Weight loss and gain

Applied Basic Sciences topics with relevance to Medicine

Cardiac cycle and ventricular functions

Cardiac biomarkers, (LFT/RFT/PFT) Normal CSF

Blood supply of brain

Lobar function of brain

Functional anatomy of spinal cord Functional anatomy of cranial

nerves Bronchopulmonary segments Pulmonary circulative

Lymphatic drainage of Lung Structure and functions of Nephrons Digestion and absorption

Haemopoiesis and Iron metabolism

Thyroid functions and hormones Calcium metabolism

Physiology of pain (&Pathophysiology) Chronic pain as a disease

Survey of pain score in every In-patient of a chosen ward)

III. Project

work IV.

Seminars

V. Structured discussion

VI. Formative evaluation

VII. Morning sessions

VIII. Revision

EXAMINATION

At the end of the course the student should have sufficient

- a) Knowledge to diagnose clinical disorders with special reference to Infectious Diseases,

- nutritional diseases, outline various modes of management including drug therapy.
 b) Skills in history taking, clinical examination and diagnosis. c)
 d) Perform simple routine investigations
 e) Assist the common bed side investigative procedures like pleural tap, lumbar puncture

Part – II		
a)	Medicine	
	Theory – two papers 60 marks each	120 marks
	Paper I – General Medicine	
	Paper II – General Medicine (including psychiatry, dermatology and STD)	
	(Shall contain one question on basic sciences and allied Subjects)	
	Oral (Viva) interpretation of Xray , ECG etc.	20 marks
	Clinical (bedside)	100 marks
	Internal Assessment	60 marks
	(Theory – 30: Practical – 30)	
	Total	300 marks
	Paper -I	

General Medicine – Section – A

I.	10 marks x 1 = 10 marks	
	(problem oriented question)	
II.	2 marks x 10 = 20 marks)	
	(short answers)	
Section -B		
III. structured question	10 marks x 1 = 10 marks	
IV. short question	2 marks x 10 = 20 marks	
Paper – II		

General Medicine including Psychiatry, Dermatology and Radio diagnosis

Section – A

1. Problem oriented question 10 marks x 1 = 10 marks

II.	Short answer question	2 marks x 10	= 20 marks
Section – B			
II.	Structured question	10 marks x 1	= 10 marks
III.	short answer question	2 marks x 10	= 20 marks

Problem oriented and structured questions must be from General Medicine. There should not be more than one question each from radiology, dermatology and psychiatry.

Ensure questions include Pain, - ethical concerns, whole person concerns, symptom management questions are assessed along with management of the disease

-Role of Multi-disciplinary team work is assessed

SCHEME OF Practical Examination

Long case = 40 Marks Time (60 minutes)

(Marks to be allotted for History- 10 marks, Physical examination- 10 marks, Case sheet writing- 10 marks; Discussion- arriving at a diagnosis + simple bedside investigations +basics of EBM - 10 marks)

Assessment of Long case should be based on

1. Case sheet writing Methodology, Symptoms Signs Diagnosis
2. Elicitation of findings
3. Differential diagnosis
4. Suggested investigation for diagnosis
5. Treatment of the situation

OSCE (4 stations- 2.5 marks each, total 10 the objective shall be to assess the candidate on his knowledge, psychomotor skills and communication skills.

Time for each OSCE station 2 minutes

Total = Long Case (40) + OSCE (10) : 50 marks .

Short Cases (2x 25= 50 marks) (15 minutes each)

(Questions for the Long Case, OSCE, Short Cases shall be on the basis of 60% 'must know', 30% 'good to know' and 10% 'nice to know')

Viva voce: 4 stations, 5 marks each (Total 20 marks)

PAEDIATRICS&NEONATOLOGY

DETAILS OF THE COURSE

Duration of course	: 10 weeks in 3 semesters	VI ,VIII &IX
Total number of hours theory	:100	

Lectures :34 (including pediatric surgery)

Clinical
 8-9 AM Tutorials
 9 AM 1 PM Case discussions &
 Innovative sessions

Exposure of students to newborns and emergency management is inadequate during ten weeks of under graduate postings. During evening hours they should be posted in casualty, ICU and new born nursery.

General guidelines

Apart from bedside discussion there should be 66 hours of Innovative sessions during clinical sessions in the forenoon session. This comprises of project work, seminars, structured discussion, and integrated teaching.

Simple day to day problems should be given more importance.

Sessions which will improve communication skills and attitude should be given more importance.

Pediatric casualty posting is compulsory during the final year posting. They should be posted in Intensive care unit and new born nurseries during evening hours with due care to prevent infections in nurseries .

There should be enough pediatric surgery case exposure during clinical sessions

The training in pediatrics should prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and rehabilitative services