

Syllabus

Course contents:

A: Cognitive domain:

Basic Sciences

1. Basics of human anatomy as relevant to clinical practice:

- Surface anatomy of various viscera
- Neuro-anatomy
- Important structures/organ's location in different anatomical locations in the body
- Histology of organs
- Blood supply, nerve supply to various organs

2. Applied physiology of various organ systems:

- Basic functioning of various organ-system, control of vital functions.
- pathophysiological alteration in diseased states.
- interpretation of symptoms and signs in relation to pathophysiology.
- Physiology of temperature, sleep regulation.

3. Applied biochemical basis of various diseases including fluid and electrolyte disorders:

- Acid - base disorders, disorders of carbohydrate, fat, protein, calcium, phosphorous and iron metabolism.
- Interpretation and clinical application of various biochemical tests.

4. Applied pathology of different diseases.

- Common pathological changes in various organs associated with diseases and their correlation with clinical signs.
- Understanding of various pathogenic processes and possible therapeutic interventions, and

- Preventive measures at various levels to reverse or arrest the progression of diseases.

5. Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help:

- Important organisms associated with tropical diseases, their growth pattern/life-cycles,
- Levels of therapeutic interventions possible in preventing and/or eradicating the organisms,
- Antimicrobial resistance,
- Antibiotic stewardship,
- Hospital infection control,
- Biomedical waste management,
- Vaccinology.

6. Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases of kidneys/liver/systemic disorders which may need alteration in doses due to abnormal metabolism/excretion of the drugs:

- pharmacokinetics and pharmaco-dynamics of drugs: principles and methodology
- Rational use of available drugs.
- Principles of drug therapy,
- Adverse drug reactions,
- Drug interaction,
- Pharmacovigilance,
- Drug abuse and addiction,
- Drug development,
- Pharmacoeconomics,
- Pharmacogenomics.

7. Research methodology, study designs, clinical epidemiology and biostatistics relevant to medical sciences.

8. National Health Programmes:

- investigation of community outbreak,
- public health policy,
- health promotion,
- prevention of communicable and non-communicable diseases.
- International health regulations,
- Travel medicine.

9. Knowledge about various poisons with specific reference to different geographical and clinical settings - their diagnosis and management.

- Knowledge about snake bite, other bites and stings,
- medicolegal aspects.

Systemic Medicine

10. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bioterrorism,

- Health tourism,
- Rehabilitation,
- Drowning,
 - Heat and altitude related disorders.

11. Geriatric Medicine:

- Physiology and biology of aging and various organ changes in elderly.
- Principles of geriatric medicine and uniqueness of geriatric presentation.
- Physical examination of geriatric patient.
- drug metabolism, laboratory tests in elderly.
- Management of unique problems related to elderly such as nutrition, falls, gait disorders, neuro- psychiatric problems etc.
- Mental health disorders,
- Elderly neglect and abuse,
- Social and family support and rehabilitation of elderly.
- Assessment of functional and cognitive aspects, counseling and communication with elderly.
- Appropriate medication and avoidance of poly-pharmacy.

12. Genetics:

- Overview of the paradigm of genetic contribution to health and disease
- Principles of Human Genetics
- Genetic basis of medical disorders
- Single gene and chromosomal disorders
- Genetic counseling
- Prevention of genetic disorders
- Genetic analysis
- Gene therapy

13. Immunology:

- Innate and adaptive immune systems
- Mechanisms of immune mediated cell injury
- HLA system, primary and secondary immune-deficiency,
- Allergic disorders: urticaria, angioedema, anaphylaxis and other allergic disorders.
- Transplantation immunology, immunocomplex disorders, organ specific and multisystem immune disorders, monoclonal antibodies.

14. Cardio-vascular diseases:
- Approach to the patient with possible cardio-vascular diseases
 - Investigative cardiology
 - Heart failure
 - Arrhythmias
 - Hypertension
 - Coronary artery disease
 - Valvular heart disease
 - Infective endocarditis
 - Diseases of the myocardium and pericardium
 - Diseases of the aorta and peripheral vascular system
 - Congenital heart diseases
 - Pulmonary arterial hypertension
 - Cor pulmonale

15. Respiratory system:

- Approach to the patient with respiratory diseases
- Investigative pulmonology
- Disorders of ventilation
- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Bronchiectasis
- Occupational lung diseases
- Interstitial lung diseases
- Hypersensitivity Pneumonitis
- Pneumonia and suppurative lung diseases
- Pulmonary embolism
- Cystic fibrosis
- Obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum
- Pulmonary manifestations of systemic diseases

16. Nephrology:

- Approach to the patient with renal diseases
- Acute kidney injury
- Chronic kidney disease
- Glomerular diseases
- Nephrotic syndrome
- Reno vascular hypertension
- Cystic Diseases of the kidney
- Tubulo-interstitial diseases
- Nephrolithiasis
- Urinary tract infection and pyelonephritis
- Diabetes and the kidney
- Obstructive uropathy and treatment of irreversible renal failure
- Dialysis
- Renal involvement in systemic diseases

17. Gastro-intestinal diseases:

- Approach to the patient with gastrointestinal diseases
- Gastrointestinal endoscopy
- Motility disorders
- Diseases of the esophagus
- Acid peptic disease
- Functional gastrointestinal disorders
- Diarrhea
- Malabsorption syndromes
- Irritable bowel syndrome
- Inflammatory bowel diseases
- Mesenteric vascular insufficiency
- Diverticular disease
- Acute intestinal obstruction

- Peritonitis
- Diseases of the rectum and anus

18. Diseases of the liver and gall bladder:

- Approach to the patient with liver disease
- Interpretation of liver function tests
- Hyperbilirubinemia
- Acute viral hepatitis
- Drug induced /toxic hepatitis
- Chronic hepatitis
- Alcoholic and non-alcoholic steatohepatitis
- Cirrhosis and its sequelae/ complications
- Portal hypertension
- Budd Chiari syndrome
- Hepatic failure and liver transplantation
- Diseases of the gall bladder and bile ducts
- Disease of pancreas including pancreatitis

19. Haematologic diseases:

- Hematopoiesis
- Anemias
- Leucopenia and leukocytosis
- Myelo-proliferative disorders
- Bone marrow failure syndromes
- Plasma cell disorders
- Disorders of hemostasis and haemopoietic stem cell transplantation
- Platelet Disorders
- Hypercoagulable conditions
- Blood components and transfusion medicine

20. **Oncology:**

- Epidemiology
- Biology and genetics of cancer
- Approach to patient with cancer
- Early detection or prevention of cancer
- Infection in cancer patients
- Oncological emergencies
- Paraneoplastic syndromes and endocrine manifestations of tumours
- Metastatic cancer of unknown primary site
- Hematological malignancies
- Cancers of various organ systems and cancer chemotherapy
- Rehabilitation and palliative care in cancer patients.

21. **Metabolic diseases - inborn errors of metabolism and disorders of metabolism:**

- Hemochromatosis
- Wilson's disease
- Porphyrias
- Other inborn errors of metabolism.

22. **Nutritional diseases:**

- Nutritional assessment, Anthropometry
- Enteral and parenteral nutrition
- Obesity and eating disorders.
- Malnutrition
- Vitamin and trace element deficiencies and excess.

23. **Endocrine diseases:**

- Approach to patients with endocrine disorders
- Disorders of Pituitary
- Disorders of thyroid gland
- Disorders of adrenal cortex

- Pheochromocytoma
- Multiple endocrine neoplasia
- Autoimmune polyendocrine syndromes
- Reproductive endocrinology including menopause and postmenopausal hormone therapy
- Diabetes mellitus
- Hypoglycemia
- Metabolic Syndrome
- Dyslipidemia
- Disorders of parathyroid gland
- Disorders of bone and mineral metabolism in health and disease
- Osteoporosis

24. Rheumatic diseases:

- Approach to the patient with rheumatic diseases
- Osteoarthritis
- Rheumatoid arthritis
- Spondyloarthropathies
- Systemic lupus erythematosus (SLE)
- Sarcoidosis
- Sjogren's syndrome
- Systemic sclerosis
- Anti-phospholipid antibody syndrome
- Behcet's disease
- Vasculitis syndromes
- Acute rheumatic fever
- Inflammatory myopathies
- Arthritis associated with systemic diseases
- Gout and crystal associated arthritis
- Relapsing polychondritis
- IgG4 related disease

- Polymyalgia rheumatica
- Fibromyalgia
- Amyloidosis

25. Infectious diseases:

- Basic consideration in Infectious Diseases
- Clinical syndromes
- Community acquired clinical syndromes
- Nosocomial infections
- Infections in immunocompromised
- Bacterial diseases - General consideration, diseases caused by gram - positive bacteria, diseases caused by gram - negative bacteria, miscellaneous bacterial infections, Atypical bacterial infections - Mycobacterial diseases, Spirochetal diseases, Rickettsial disease, Mycoplasma and Chlamydia.
- Viral diseases - DNA viruses, RNA viruses, HIV infection, Emerging viral diseases
 - Coronavirus, Nipha virus, H1N1 virus, Hantavirus.
- Fungal infections,
- Protozoal infections,
- Helminthic infections.

26. Neurology

- Approach to the patient with neurologic diseases,
- Diagnostic neurology,
- Localization of neurological diseases,
- Headache,
- Seizure disorders and epilepsy,
- Coma,
- Disorders of sleep,
- Cerebrovascular diseases,

- Cranial neuropathy,
- Dementias and neurodegenerative diseases,
- Brain abscess,
- Demyelinating diseases,
- Parkinson's disease and other movement disorders,
- Motor neuron diseases,
- Ataxic and gait disorders,
- Meningitis and encephalitis,
- Prion diseases,
- Peripheral neuropathies,
- Muscle diseases,
- Diseases of spinal cord
- Diseases of neuromuscular transmission,
- Autonomic disorders and their management.

27. Psychiatric disorders

Common psychiatric disorders in adult & geriatric population:

- Mood (affective) disorders,
- Anxiety disorders,
- Schizophrenia,
- Organic mental disorders,
- Eating disorders,
- Sexual disorders,
- Personality disorder and suicide and self-harm,
- Autistic disorders,
- Functional and psychosomatic disorder,
- Somatoform disorder,
- Dissociative/ conversion disorder.
- Substance use disorders.

28. Dermatology:

- Structure and functions of skin.
- Infections of skin.
- Papulo-squamous and inflammatory skin rashes.
- Photo-dermatology.
- Erythroderma.
- Cutaneous manifestations of systematic diseases.
- Bullous diseases.
- Drug induced rashes.
- Disorders of hair and nails.
- Principles of topical therapy.

29. Critical care medicine

- Approach to patient with critical illness.
- Acute respiratory distress syndrome.
- Mechanical ventilatory support.
- Approach to patient with shock.
- Sepsis and septic shock.
- Cardiogenic shock and pulmonary edema.
- Cardiovascular collapse and cardiac arrest.
- Cardiopulmonary resuscitation.

30. Miscellaneous

- Medical illnesses in pregnancy
- Peri-operative evaluations

B: Psychomotor domain: Detailed guidelines on this section are given under Subject specific competencies.

**MAPPING OF PROGRAMME OUTCOMES [POs] AND
COURSE OUTCOMES [COs] OF PG
PROGRAMMES**

No.	By the end of the programme, the Postgraduate will have /be:
PO 1	Knowledge and Skills
PO 2	Planning and problem solving abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

ANATOMY

Course Code	Course Title
01100301	MD Anatomy

PROGRAMME OUTCOMES

CO No.	At the end of the course, the learner should be able to :	Mapped Programme Outcomes
CO 1	Acquire the competencies in gross anatomy Neuro anatomy, Histology , genetics, radiological anatomy, applied anatomy and embryology	PO 01, PO 02,PO03, PO 05
CO 2	Acquire mastery in skills of dissection, embalming, tissue preparation, and museum preparation	PO 01, PO 02, PO 03, PO 04, PO 05, PO 06 and PO 09
CO 3	Acquire skills in teaching undergraduate students	PO 01, PO 02, PO 03, PO 04, PO 05, PO 06 , PO 07 andPO 9
CO 4	Acquire skills in basic aspects of biostatistics and research methodology , develop ability to plan the protocol of thesis , carryout review of literature resarch ,execution of research and preparation of report	PO 1, PO 02, PO 03, PO 04, PO 05, PO 06, PO 07, PO 08, PO 09
CO 5	Shall be able to use computer applications, online literature search , retrieving and compiling relevant database from scientific repositories (Pub med, Cochrane , Med line etc)	PO 1, PO 02, PO 03, PO 04, PO 05, PO 06, and PO 09
CO 6	Acquire the skills of prepare and poster presentations, writing research papers and thesis	PO 1, PO 02, PO 03, PO 04, PO 05, PO 06, and PO0 9

CO No.	At the end of the course, the learner should be able to :	Mapped Programme Outcomes
CO 7	Develop honest work ethics, empathetic behaviour with students and colleagues . Acquire capacity of not letting his/ her personal beliefs prejudices and limitations to come in the way of his duty. Acquire attitude and communication skills to interact with colleagues , teachers and students	PO 1, PO 02, PO 03, PO 4, PO 05, PO 06, PO 07, PO 09
CO 8	Practice different methods of teaching -learning Making presentations of subject topics and research outputs	PO 01, PO 02, PO 03, PO 04, PO 05, PO 06, and PO 09
CO 9	Develop problem solving approach and demonstrate the ability to identify applied implications of knowledge of anatomy in relevant clinical problem using literature and electronic media	PO 1, PO 03 PO 04, PO 05, PO 06, PO 09
CO 10	Demonstrate the ability to correlate the clinical conditions to the anatomical and embryological or hereditary factors	PO1, PO 03, PO 04 PO 05, PO 06 and PO 09
CO 11	Demonstrate the ability to evaluate scientific/clinical information and critically analyze conflicting data and hypothesis	PO1, PO 03, PO 04, PO 05, PO 06, PO 09