VINAYAKA MISSION'S KIRUPANANDA VARIYAR MEDICAL COLLEGE & HOSPITALS, SALEM – 636308.

Vinayaka Mission's Research Foundation (Deemed to be University)

ANNUALTIMETABLE

I MBBS (2019 – 2020 batch)

MODULE	NAME OF THE MODULE	Time period
	Foundation Course	Aug
1.	General Module	Sept
2.	General Embryology, Genetics, General Histology, Haematology, Immunology	Sept/Oct
3.	Locomotor System & Autonomic Nervous System, Minerals	Oct/Nov
4.	Cardiovascular System	Nov/Dec
5.	Respiratory system	Dec
6.	Endocrine system	Jan
7.	Head & Neck, Special Senses and Central Nervous System, Carbohydrate Metabolism, Vitamins, Amino acids	Jan / Feb / March
8.	Renal system, Temperature regulation, acid base balance, ammonia metabolism	March / April
9.	Gastrointestinal System, Molecular biology, cancer genetics, advances in molecular biology	April / May
10.	Reproductive system	June
11	Revision	July
	Total	34 weeks
12.	**3 IAE - Theory**	4 weeks
	3 IAE - Practicals	
	3 IAE - Viva	
	Model Exam - Theory	
	Model Exam - Practicals & Viva	
13.	**Formative assessment**	1 week
14.	**Vacation**	4 weeks
15.	**Sports & Culturals**	1 week
16.	**University Exams**	4 weeks
17.	**Professional Development - AETCOM /Mentorship Program- 4th Saturday every month (3 hours)**	-
	Total	48 weeks

27/4/2019.

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TOTAL TEACHING HOURS

Foundation course	175 hrs
Anatomy	675 hrs
Physiology	495 hrs
Biochemistry	250 hrs
CM	52 hrs
ECE	90 hrs
Professional Dev	48 hrs
Sports & extracurricular activities	60 hrs
Formative assessment & Term exams	80 hrs

Subjects	Lectures (hours)	Small Group Teaching/ Tutorials/ Integrated learning/ Practical (hours)	Self directed learning (hours)	Total (hours)
Anatomy	220	415	40	675
Physiology	160	310	25	495
Biochemistry	80	150	20	250
Early Clinical Exposure		90	0	90
Community Medicine	20	27	5	52
Professional development including ethics		48	0	48
Sports and extracurricular activities				60
Formative assessment and Term examinations				80
Total				1750

VINAYAKA MISSION'S KIRUPANANDA VARIYAR
MEDICAL COLLEGE & HOSPITALS, SALEM.
VINAYAKA MISSION'S RESEARCH FOUNDATION (DEEMED TO BE UNIVERSITY)
I MBBS (2019-20)
ALIGNED LESSON PLAN WITH TEMPORAL INTEGRATION
ANATOMY, PHYSIOLOGY & BIOCHEMISTRY

Month	Anatomy	Physiology	Biochemistry
August	Foundation Course		
September	General Module General Anatomy Genetics General Histology -Part I	General Module Haematology Immunology	General Module Haematology Immunology
October	General Histology -Part II Locomotor system (Upper Limb) & Autonomic Nervous System	Haematology Immunology Locomotor system & Autonomic Nervous System	Haematology Immunology Minerals
November	General Histology -Part II Locomotor system (Lower Limb) & Autonomic Nervous System, Thorax (CVS) I Internal Assessment Examination - Theory/ Practicals & Viva	Cardiovascular System Respiratory System I Internal Assessment Examination - Theory/ Practicals & Viva	Cardiovascular System I Internal Assessment Examination - Theory/ Practicals & Viva
December	Thorax (Respiratory System) Winter Vacation	Respiratory System Winter Vacation	Respiratory System Winter Vacation
January	Endocrine system Head & Neck	Endocrine system	Endocrine system Carbohydrate metabolism
February	Head & Neck Special senses	Special senses CNS	Carbohydrate metabolism Vitamins A, B, Pantothenic acid aromatic amino acids Neurotransmitters Renal system

Month	Anatomy	Physiology	Biochemistry
March	Central Nervous System II Internal Assessment Exam (Theory, Practicals, viva)	Special senses Central Nervous System II Internal Assessment Exam (Theory, Practicals, viva)	Renal system II Internal Assessment Exam (Theory, Practicals, viva)
April	Renal system Gastrointestinal system	Renal system Gastrointestinal system	Renal system
May	Gastrointestinal system	Gastrointestinal system	Gastrointestinal system
June	Reproductive system III Internal Assessment Exam (Theory, Practicals, viva)	Reproductive system III Internal Assessment Exam (Theory, Practicals, viva)	Gastrointestinal system Reproductive system III Internal Assessment Exam (Theory, Practicals, viva)
July	Revision	Revision	Revision
August	Model Exam	Model Exam	Model Exam
September	University Exam	University Exam	University Exam

SYSTEM-BASED CONTENT

MODULE	SECTION	DEPT.	NAME OF THE MODULE/DESCRIPTION
1	**GENERAL MODULE**		
	1.1	**ANATOMY**	**GENERAL ANATOMY**
		1.1.1 (Theory)	● Introduction to Anatomy &general anatomical terms ● Introduction to Bones ● Introduction toJoints ● Introduction to Muscular system ● Introduction to Vascular system ● Introduction to Lymphaticsystem ● Introduction to Nervous System ● Introduction to IntegumentarySystem
		1.1.2 (Theory SDL)	● Types of cartilage ● Types Epiphysis ● End arteries
		1.1.3 (Practical)	● Terms of anatomical position& movement, body planes ● Skeletalsystem ● Muscularsystem ● Nervoussystem ● Vascular system ● Lymphaticsystem
		1.1.4 (ECE)	● Visit to hospital ward/ OPD & OT ● Reflections on hospital visit
	1.2	**PHYSIOLOGY**	**GENERAL PHYSIOLOGY**
		1.2.1 (Theory)	● Importance of Physiology in medicine ● Functional organization of human body, Principles of Homeostasis and physiological control mechanism ● Cytoskeleton, molecular motors, intercellular connections and communications, apoptosis ● Transport across cell membrane ● Body fluids: Principles and methods of measurement of body fluid compartments
		1.2.2 (Theory SDL)	● Functional organization of Cell and its organelles
		1.2.3 (Practical)	● Introduction to hematology practical ● Microscopy and collection of blood samples
		1.2.4 (ECE)	● Demonstration of Edema ● Fluid replacement in dehydrated patients ●
	1.3	**BIOCHEMISTRY**	**GENERAL BIOCHEMISTRY**
		1.3.1 (Theory)	● Cell structure and function ● Chemistry of carbohydrates / lipids / proteins ● Plasma Proteins ● Biological oxidation and ATPsynthesis ● Enzyme classification, kinetics, Inhibition and regulation ofenzyme activity, Co enzymes and Isoenzymes.

		1.3.2 (Theory SDL)	● Protein folding and Protein conformation diseases ● Enzymes in clinical diagnosis
		1.3.3 (Practical)	● Color reactions of carbohydrates ● Color reactions of proteins
		1.3.4 (ECE)	● Visit to clinical lab
2	**GENERAL EMBRYOLOGY, GENETICS, GENERAL HISTOLOGY, HEMATOLOGICAL SYSTEM & IMMUNOLOGICAL SYSTEM**		
	2.1	**ANATOMY**	**GENERAL EMBRYOLOGY, GENETICS & GENERAL HISTOLOGY**
		2.1.1 (Theory)	**GENERALEMBRYOLOGY** ● Spermatogenesis ● Oogenesis ● Fertilization ● Cleavage, blastocyst formation, implantation ● Germ disc ● Primitive streak and intraembryonic mesoderm ● Notochord, neural tube formation ● Connecting stalk, allantoic diverticulum, folding of embryo ● Placenta & umbilicalcord ● Twinning &teratogens **GENETICS** ● Structural aberrations ofchromosomes ● Chromosomes & Karyotyping ● Chromosomal Abnormalities ● Modes of Inheritance ● Gene Structure and Mutation ● Prenatal diagnosis & Genetic counselling
		2.1.2 (Theory SDL)	● Barr Body ● Down's, Turner's, Edward's. Klinefelter's, Patau's Syndrome
		2.1.3 (Practical)	● Demonstration of embryology charts
		2.1.4 (Theory &Practical)	**General Histology:** ● Epithelialtissue (simple & stratified) ● Connectivetissue ● Cartilage ● Bone ● Musculartissue ● Nervous tissueincludingautonomicganglia ● Bloodvessels ● Lymphatic tissue ● Integumentary system
		2.1.5 (SDL)	● Microscope ● Types of cell junctions ● Cells of connective tissue
		2.1.6 (ECE)	● Visit to bedside microbiology/pathology labs in hospital wards

	2.2	**PHYSIOLOGY**	**HEMATOLOGY & IMMUNOLOGY**
		2.2.1 (Theory)	• Composition and functions of blood, Plasma proteins • Erythropoiesis: Sites, stages, regulation • Hb – structure, types and function, fate, Jaundice • PCV, ESR, Red cell indices, Osmotic fragility • Anemia: Classification, Physiological basis of investigtions • WBCs: Leucopoiesis, functions- Neutrophils & inflammation • RE system, Basophils & Eosinophils • Immunity: Classification, development, Cell mediated immunity • Humoral immunity: Antibody formation, structure, types, action • Immunity Applied: Immune tolerence, Autoimmunity, Immunodeficiency etc • Platelets-morphology, functions, thrombopoiesis, variations, Hemostasis • Blood coagulation-clotting factors, mechanism, clot retraction & clot lysis • Bleeding disorders and anticoagulants • Blood groups-ABO and Rh system • Physiological basis of blood transfusion and its hazards
		2.2.2 (Theory SDL)	• Red Blood Cell – Structure, Functions and fate of RBC • Lymphoid organs and Lymph
		2.2.3 (Practical)	• Hb estimation • Hemocytometry • RBC Count • ESR and PCV • Osmotic fragility & specific gravity • TLC • DLC • Blood Group, • BT, CT • Absolute eosinophil count
		2.2.4 (ECE)	• Visit to blood bank • Visit to central lab to observe collection of blood & CBC procedure
	2.3	**BIOCHEMISTRY**	**HEMATOLOGY & IMMUNOLOGY**
		2.3.1 (Theory)	• Hemoglobin; Structure and function • Heme- Synthesis, Catabolism anddisorders • Hematopoietic Vitamins: B6,B12 , Folic Acid, Iron Metabolism • Hemoglobinopathies
		2.3.2 (Theory SDL)	• Immunoglobulins: Structure and types • Biochemistry of AIDS • Biochemical Investigations in Anemia
		2.3.3 (Practical)	• Colorimetry • Demonstration of Immunological techniques (ELISA, FIA)

		2.3.4 (ECE)	• Anemia – A Case discussion • Hemoglobinopathies-Clinical presentations, Videos, • Porphyrias – Case report , pictures
		AETCOM / Professional Development Programme	● The cadaver as our first teacher
3	**LOCOMOTOR SYSTEM & AUTONOMIC NERVOUS SYSTEM**		
	3.1	**ANATOMY**	**LOCOMOTOR SYSTEM**
		3.1.1 (Theory)	**LOCOMOTOR SYSTEM – Upper Limb** ● Axilla& Axillary artery in detail ● Brachial plexus ● Deltoid intermuscular spaces, ● Shoulder joint ● Elbow joint ● Radioulnar joints : superior, middle and inferior ● Flexor retinaculum and extensor retinaculum ● Spaces in the hand ● Nerves of upperlimb - median, ulnar, radial **LOCOMOTOR SYSTEM – Lower Limb** ● Venous drainage of lower limb ● Femoral triangle including femoral sheath ● Femoral artery and femoral nerve ● Gluteal muscles and structures under cover of gluteus maximus ● Hip joint ● Sciatic nerve ● Common peroneal, deep peroneal & superficial peroneal nerves ● Kneejoint ● Ankle joint ● Arches offoot
		3.1.2 (Theory SDL)	● Anastamosis around scapula ● Anastomosis around elbow joint ● Venous & lymphatic drainage of upperlimb ● Venous & lymphatic drainage of upperlimb ● Anastomosis around knee joint ● Gait cycle

		3.1.3 **(Practical)**	**LOCOMOTOR SYSTEM – Upper Limb** Dissection: ● Pectoralregion ● Axilla ● Scapularregion ● Arm ● Forearm ● Hand Osteology: ● Clavicle ● Scapula ● Humerus ● Radius ● Ulna ● Articulatedhand Demonstration: ● Surface anatomy & radiology **LOCOMOTOR SYSTEM – Lower Limb** Dissection: ● Front ofthigh ● Adductorcompartment ● Glutealregion ● Posterior compartment of thigh ● Poplitealfossa ● Anterior & lateral compartment of leg and dorsum offoot ● Posterior compartment of leg & retinacula aroundankle
			● Sole Osteology: ● Hip bone ● Femur ● Patella ● Tibia ● Fibula ● Foot Demonstration: ● Surface anatomy & radiology
		3.1.4 **(ECE)**	● Visit to radiology department - Observe use of X-ray machine & Read normal Xrays ● Visit to Orthopedics department - Observe patients with fractures & dislocations
	3.2	**PHYSIOLOGY**	**LOCOMOTOR SYSTEM & AUTONOMIC NERVOUS SYSTEM**
		3.2.1 **(Theory)**	• Resting Membrane Potential • Action potential • Neuron, Nerve, • Neuromuscular junction • Skeletal Muscle

			• Smooth muscle • Autonomic nervous system : functional organization • Sympathetic and para sympathetic systems • Autonomic function tests
		3.2.2 (SDL)	• Dysfunctions of autonomic nervous system
		3.2.3 (Practical)	• Demo of autonomic function tests
		3.2.4 (ECE)	• Nerve conduction test and Surface EMG recording in Neurology department
	3.3	**BIOCHEMISTRY**	**LOCOMOTOR SYSTEM & AUTONOMIC NERVOUS SYSTEM**
		3.3.1 Theory	● Minerals: Calcium, Phosphorus, Magnesium ● Vitamins: Vitamin D and pantothenicacid ● Rickets, Fanconisyndrome
		3.3.2 Theory SDL	• Disorders of muscles: Muscular dystrophy,malignant hyperthermia
		3.3.3 Practical	• Demonstration - Estimation of calcium andPhosphorus
		3.3.4 (ECE)	• Osteo orthritis and Osteoporosis • Rickets – Clinical Presentation ,pictures & X rays • Flurosis –Clinical Presentation, pictures • Collagen Vascular disorders – Case report , pictures
		AETCOM / Professional Development Programme	● The Foundations of Communication - I
4	**CARDIOVASCULAR SYSTEM**		
	4.1	**ANATOMY**	**CARDIOVASCULAR SYSTEM (Thorax)**
		4.1.1 (Theory)	● Thoracic wall ● Mediastinum ● Pericardium and External features of theHeart ● Chambers of heart ● Blood supply toheart ● Arch of aorta ● Azygous vein & thoracic duct ● Development of heart, aortic arch arteries, superior & inferior vena cava
		4.1.2 (Theory SDL)	● Referred pain from heart ● Fetalcirculation ● Structure of valves of the heart

		4.1.3 **(Practical**)	Dissection: ● Thoracic wall ● Location of heart, pericardium and pericardialsinuses ● External features of heart, blood vessels of theheart ● Internal features of chambers of theheart ● Superior mediastinum&Posteriormediastinum Demonstration: ● Embryologycharts - Development of interatrial & interventricular septae & superior vena cava ● Surface anatomy - Heart & valves ● Radiological anatomy - Chest x-ray (mediastinum)
		4.1.4 **(ECE)**	● Visit to Radiology department - Angiogram
	4.2	**PHYSIOLOGY**	**CARDIOVASCULAR SYSTEM**
		4.2.1 **(Theory**)	• Cardiac muscle: Structure, Properties • Conducting system of heart • Electrocardiogram: Leads, Waves, Intervals, Segments Vector, Applied aspect • Cardiac cycle • Heart rate & its regulation • Hemodynamics • Cardiac output: Definition, Normal values, Factors affecting, Measurement, Regulation • Blood pressure-Definition, normal volumes, variations and its measurement, Regulation & applied aspects • Coronary circulation • Cerebral, Cutaneous & Splanchnic circulation • Shock
		4.2.2 **(Theory SDL**)	• Functional anatomy of heart • JVP and heart sounds • Physiology of blood vessels • Fetal circulation • Skeletal muscle circulation
		4.2.3 **(Practical**)	• Examination of peripheral pulses & recording of BP • Demo- ECG • Effect of posture on BP • Effect of exercise on BP • Examination of cardiovascular system
		4.2.4 **(ECE)**	• Visit to medicine department to observe cardiac investigations- ECG, Echocardiogram, treadmill test • Visit to medicine department to examine patients with cardiovascular diseases
	4.3	**BIOCHEMISTRY**	**CARDIOVASCULAR SYSTEM**
		4.3.1 **(Theory**)	• Collagen – structure,disorders • Lipid metabolism, prostaglandins • Sulphur containing Amino acids, Homocysteine metabolism anddisorders, Arginine • Vitamins : C & K • Free radicals andantioxidants • Interpretation of lipidprofile

		4.3.2 (Theory SDL)	• Collagen Vascular disorders • Hyperlipoproteinemias, metabolicsyndrome
		4.3.3 (Practical)	• Demonstration of Estimation of cholesterol and Troponin T
		4.3.4 (ECE)	• Hyper Tension • Obesity • Cardio Vascular diseases
		AETCOM / Professional Development Programme	➢ Consumer Protection Act related to Medical Profession ➢ Medical negligence and doctor's liability
5	**RESPIRATORY SYSTEM**		
	5.1	**ANATOMY**	**RESPIRATORY SYSTEM**
		5.1.1 (Theory)	• Thoracic inlet • Intercostalspace including intercostal muscles, nerves and vessels • Lungs including bronchopulmonary segments • Diaphragm • Nasal cavityincluding lateral wall of nose & nasal septum • Paranasal airsinuses • Interior of Larynx • Development of respiratorysystem
		5.1.2 (Theory & SDL)	• Trachea • Cross sectional anatomy of thorax at T_4-T_5 level • Development of diaphragm
		5.1.3 (Practical)	Osteology: • Thoracic vertebra • Sternum • Ribs Dissection: • Thoracic cage, inlet,outlet,intercostalspace • Intercostal muscles, nerves and vessels • Diaphragm • Pleura • Lungs • Nasal cavity &nasopharynx • Larynx & trachea Systemic Histology: • Histology of trachea& lung Demonstration: • Radiological anatomy of Head & neck - nasalcavity, paranasalsinuses, larynx & trachea • Chest x-ray • Surface anatomy of respiratorysystem
		5.1.4 (ECE)	• Watch video of patient with respiratory disorders • Department of pulmonology - Pleural effusion/pleural tap

	5.2	**PHYSIOLOGY**	**RESPIRATORY SYSTEM**
		5.2.1 (Theory)	● Functional anatomy, non respiratory functions of lung ● Mechanics of respiration: Muscles, Respiratory pressures ● Compliance, Surfactant, airway resistance & work of breathing ● Dead space, Alveolar ventilation, Gas exchange across respiratory membrane ● Pulmonary circulation ,V/Q ratio ● Transport of oxygen and carbon dioxide ● Neural regulation of respiration ● Chemical and non chemical regulation of respiration ● Hypoxia, Cyanosis, High altitude physiology ● Deep sea physiology ● Application of pulmonary function tests in various diseases ● Cardiorespiratory changes during exercise, O_2 debt
		5.2.2 (Theory & SDL)	● Lung volumes & capacities ● Lung function tests: Classification & methods ● Oxygen therapy ● Abnormal respiration ● Assisted ventilation & CPR
		5.2.3 (Practical)	● Stethography ● Spirometry ● Clinical Examination of RS
		5.2.4 (ECE)	● Visit to PFT lab ● Visit to medicine department
	5.2	**BIOCHEMISTRY**	**RESPIRATORYSYSTEM**
		5.3.1 (Theory)	● General aspects of acid base balance, Buffers, Respiratory regulationof blood pH and relateddisorders
		5.3.2 (Theory & SDL)	• Interpretation of acid basedisorders
		5.3.3 (Practical)	● Demonstration of pH meter, pH indicator
		5.3.4 (ECE)	● COPD
		AETCOM / Professional Development Programme.	Medical Records Department & Hospital Information System - Documentation of patient information

6	**ENDOCRINE SYSTEM**		
	6.1	**ANATOMY**	**ENDOCRINE SYSTEM**
		6.1.1 (Theory)	● Pituitary gland- Gross anatomy &microscopic anatomy ● Thyroid and parathyroid - Grossanatomy, microscopic anatomy & development ● Adrenal gland - Gross anatomy, microscopic anatomy& development
		6.1.2 (Theory &SDL)	● Developmental of pituitary gland ● Congenital anomalies of thyroid gland, DiGeorge syndrome, Waardenberg's syndrome
		6.1.3 (Practical)	● Demonstration of gross specimen of pituitary, thyroid, parathyroid & adrenal glands ● Demonstration of embryology charts - Development of thyroid, parathyroid, adrenal medulla (neural crest) ● Histology - pituitary, thyroid andparathyroidand adrenalglands
		6.1.4 (ECE)	● Visit to surgery ward - Patients with thyroid swelling OR ● Video - Goitre/Thyroidectomy
	6.2	**PHYSIOLOGY**	**ENDOCRINE SYSTEM**
		6.2.1 (Theory)	● Mechanism of hormone action ● Pituitary gland & Hypothalamus, Hypothalamo-hypophyseal axis. ● Growth hormone ● Posterior pituitary hormones ● Thyroid hormones: Synthesis, Secretion, Transport ● Thyroid hormones: Actions, Regulation ● Applied aspects of thyroid ● Adrenocortical hormones: Biosynthesis. Actions & regulation of mineralocorticoids ● Glucocorticoids: Actions, Regulation, Applied aspects ● Endocrine pancreas: Insulin- Secretion, Actions, Regulation ● Glucagon, Regulation of blood glucose level, Applied aspects of endocrine pancreas ● Regulation of serum calcium level: Parathormone ● Calcitonin, calcitriol, Applied aspects ● Endocrine, function of kidney, pineal gland and heart
		6.2.2 (Theory SDL)	● Introduction and General Principles of regulation of endocrine secretions ● Thyroid function tests ● Adrenomedullary hormones – Biosynthesis, Functions and Regulation of secretion ● Local hormones
		6.2.3 (Practical)	• CVS and RS practicals will be taken during these 3 weeks Time

		6.2.4 (ECE)	• Visit to medicine department to demonstrate features of various endocrine disorders.
	6.3	**BIOCHEMISTRY**	**ENDOCRINE SYSTEM**
		6.3.1 (Theory)	● Carbohydrate Metabolism: Glycolysis, fate of Pyruvate , TCA cycle ● Gluconeogenesis, Glycogenesis, Glycogenolysis, ● Regulation of blood glucose, ● Metabolism instarvation and fed state ● Mechanism of Hormone action ● Thyroid function tests, ● Adrenocortical functiontests, ● Diabetes mellitus ● OGTT
		6.3.2 (Theory SDL)	● Lab diagnosis of Diabetes Mellitus ● Interpretation of thyroid and adrenal functiontest
		6.3.3 (Practical)	● Blood Glucose Estimation ● Demonstration of Glucometer
		6.3.4(ECE)	• Endocrine disorders Part I – Case report, Videos • Endocrine disorders Part II – Case report, Videos • Diabetes Mellitus • Gestational diabetes Mellitus • Thyroid swelling
		AETCOM / Professional Development Programme	➢ Teamwork & Leadership ➢ Career Guidance
7	**SPECIAL SENSES, CENTRAL NERVOUS SYSTEM**		
	7.1	**ANATOMY**	**HEAD & NECK, SPECIAL SENSES, CENTRAL NERVOUS SYSTEM**
		7.1.1 Theory	Gross Anatomy: ● Scalp ● Muscles of face ● Posterior Triangle ofneck ● Anterior Triangle ofneck including digastric & carotid triangles ● Meninges ● Dural venoussinuses with cavernoussinus in detail ● Cranial nerves - VII & IX in detail ● Parotidgland ● Temporomandibularjoint ● Submandibulargland ● Pharynx Systemic Embryology: ● Development of Pharyngealapparatus - I ● Pharyngeal apparatus - II including pharyngeal arch arteries ● Development of face ● Development ofpalate Systemic histology:

			• Salivary glands: serous, mucous, mixed **Special senses:** • Tongue - Gross, histology & development • Eyeball - Histology of cornea & retina • Extraocularmuscles • External ear and middle ear - Gross & development • Internalear • Development ofeye **Central nervous system:** • Spinalcord • Medulla • Pons • Midbrain • Cerebellum • Ventricles ofbrain - IV ventricle & lateral ventricles in detail • Basalganglia & limbic system • Cerebrum - Sulci/gyri/lobes/functional areas • White matter ofcerebrumwith internal capsule in detail • Blood supply ofbrain& spinal cord, Circle of Willis • Development of Nervous system
		7.1.2 **(Theory SDL)**	• Parasympathetic ganglia - ciliary, otic, submandibular, pterygopalatine • Lacrimal apparatus • Bell's palsy • Lymphatic drainage ofneck • Fascial spaces in the neck • Lumbarpuncture • Thalamus & hypothalamus
		7.1.3 **(Practical**)	Dissection: **Head &** **Neck** • Scalp • Face-Muscles, vessels &Nerves • Triangles ofneck • Cranial cavity • Deep dissection of neck • Parotidregion • Infratemporal fossa & muscles ofmastication • Submandibularregion • Pharynx **Special senses** • Tongue • Orbit • Eyeball • Ear

			Central Nervous System ● Spinalcord ● Brainstem ● Cerebellum ● Ventricles ofbrain ● Thalamus & hypothalamus ● Basalganglia & limbic system ● Cerebrum Demonstration: ● Radiology & SurfaceAnatomy of head & neck and CNS Osteology: ● Skull - Normas, Cranial cavity ● Mandible ● CervicalVertebrae - typical & atypical Histology**:** ● Tongue ● Cornea ● Retina ● Cerebrum ● Cerebellum Spinal cord
		7.1.4 **(ECE)**	● Radiology Department - CT/MRI - Observe procedures OR ● ENT OPD - Ear examination with speculum OR ● Ophthalmology OPD – Fundoscopy
	7.2	**PHYSIOLOGY**	**CENTRAL NERVOUS SYSTEM, SPECIAL SENSES & INTEGRATIVE PHYSIOLOGY**
		7.2.1 **(Theory)**	• Organization of nervous system • Synapse & neurotransmitters • Sensory receptors • Sensory modalities, Sensory cortex • Ascending tracts • Pain: Receptor, Types, Pathway • Referred pain, Pain analgesia system • Thalamus • Organization of motor system, Muscle spindle, Golgi tendon organ • Reflexes • Descending tracts: Pyramidal tract • Extrapyramidal tracts, spinal lesions • Basal ganglia: Nuclei, Connections, Functions & Disorders • Cerebellum: Physiologic anatomy, Internal circuits, Connections, Functions, Disorders & Cerebellar function tests • Vestibular Apparatus • Muscle tone: Regulation, Applied aspects • Regulation of posture & movement

			• Hypothalamus: Connections, Functions & applied aspects • Limbic system • Reticular formation, Sleep & EEG • Learning & Memory • Language & Speech • Association cortices, Cortical plasticity • Structure of eye, Principles of image formation, Errors of refraction, Field of vision, Visual pathway, Visual reflexes • Visual acuity, Colour vision • Structure of ear, Auditory pathway, Properties of sound, Mechanism of hearing, Pitch discrimination, Intensity discrimination, Sound localization, Applied aspects • Smell & Taste
		7.2.2 **(Theory SDL**)	• CSF • The photoreceptor mechanism • Movements of eye
		7.2.3 **(Practical)**	• Examination of motor system • Reflexes • Examination of sensory system
		7.2.4 **(ECE)**	• Visit to medicine department for observing neurological cases • Visit to Ophthalmology department for observing optometry & fundus examination • Visit to ENT department for observing otoscopy & audiometry
	7.3	**BIOCHEMISTRY**	**CENTRAL NERVOUS SYSTEM, HEAD & NECK & SPECIAL SENSES**
		7.3.1 **(Theory)**	• Vitamin A, B1,Pantothenic Acid • Aromatic Amino acids • Glycine, GABA, Glutamic acid, Histidine •
		7.3.2 **(Theory SDL**)	• Interpretation of CSFanalysis and other body fluids
		7.3.3 **(Practical)**	• No practical
		7.3.4 **(ECE)**	• Inborn errors of amino acid metabolism- case reports, lab findings • Peripheral neuropathy
		AETCOM / Professional Development Programme	➢ Work Ethics

8	**RENAL SYSTEM**		
	8.1	**ANATOMY**	**RENAL SYSTEM**
		8.1.1 (Theory)	Gross anatomy: ● Kidney &ureter ● UrinaryBladder Histology: ● Kidney, ureter, UrinaryBladder Development: ● Kidney, ureter, UrinaryBladder
		8.1.2 (Theory SDL)	● Urethra Male &Female
		8.1.3 (Practical)	Dissection: ● Kidney ● Ureter ● UrinaryBladder Histology: ● Kidney ● Ureter ● UrinaryBladder Demonstration: ● Embryology charts: Development of kidney, ureter & urinaryBladder
		8.1.4 (ECE)	● Case reports & X-rays of patients with renal disorders ● Skills lab - Catheterization of male & female urethra
	8.2	**PHYSIOLOGY**	**RENAL SYSTEM**
		8.2.1 (Theory)	• Functional anatomy, Nephron- Types, JG apparatus, Renin-angiotensin system • Renal circulation • GFR: Definition, factors affecting, regulation & measurement • Tubular reabsorption & Secretion • Mechanism of urine concentration & dilution • Role of kidney in water &electrolyte balance • Role of kidney in acid-base balance • Micturition • Renal function tests • Physiological basis of renal failure & dialysis • Skin & Temperature regulation
		8.2.2 (Theory SDL)	• Functional organization of the renal system, Non-excretory functions of Kidney • Principle of Diuresis and Diuretics •
		8.2.3 (Practical)	Examination of cranial nerves 1-12
		8.2.4 (ECE)	Visit to dialysis unit

	8.3	**BIOCHEMISTRY**	**RENAL SYSTEM**
		8.2.1 (Theory)	**Excretory function:** • Formation of ammonia, Detoxificationof ammonia, • Urea cycle **Regulatory function:** • Water and electrolyte balance(Na,K,Cl), • Renal Regulation of Acid Base balance **Renal function test:** • Tests for glomerular and tubularfunctions
		8.2.2 (Theory SDL)	• Interpretation of RFT, Disorders of urea cycle(Hyperammonemia) • Lab diagnosis of renal failure, nephritic/ nephrotic syndrome,RTA • Interpretation of metabolic acidosis and metabolicalkalosis
		8.2.3 (Practical)	• Normal Urine analysis • Abnormal Urine analysis • Demonstration of Dipsticks • Estimation of Urea , Creatinine & Uric acid • Demonstration of Electrolyte analysis (ISE method) • Demonstration of ABG analysis
		8.2.4 (ECE)	• Patient presenting with Edema • Diabetic ketoacidosis • Urinary Tract Infection • Acute/ Chronic Renal failure
		AETCOM / Professional Development Programme	• Attributes of Professionalism
9.	**GASTROINTESTINAL SYSTEM, HEPATOBILIARY & PANCREATIC SYSTEM & NUTRITION**		
	9.1	**ANATOMY**	**GASTROINTESTINAL SYSTEM, HEPATOBILIARY & PANCREATIC SYSTEM**
		9.1.1 (Theory)	Gross Anatomy: • Anterolateral abdominalwall • InguinalCanal • Peritoneum& peritoneal cavity • Esophagus • Stomach • Duodenum • Pancreas • Liver • Extrahepatic BiliaryApparatus • Portal vein &PortosystemicAnastomosis • VermiformAppendix • Rectum • Anal Canal • Superficial & deep perineal pouches

			• Ischio-analfossa Systemic Histology: • Oesophagus • Stomach • Small intestine - duodenum, jejunum, ileum • Large intestine • Gall bladder • Liver • Pancreas Embryology: • Development ofGIT - foregut, midgut & hindgut derivatives
		9.1.2 **(Theory SDL)**	• Cholecystitis • Appendicitis • Subphrenic spaces • Ascitis
		9.1.3 **(Practical)**	Dissection: • Anterior Abdominal Wall • Inguinal Canal • Peritoneal folds andrecesses • Stomach • Duodenum • Coeliac Trunk • Jejunum, Ileum • Superior Mesenteric Artery • Liver • Extrahepatic Biliary Apparatus • Portalvein • Pancreas • Spleen • Caecum &Appendix • Large intestine - ascending, transverse, descending & sigmoid colon • Inferior MesentericArtery • Rectum • Anal Canal Osteology: • Anal Canal • Lumbar Vertebra • Sacrum • Bony pelvis Demonstration: • Surface anatomy of organs of GIT • Radiology - Plain and contrastXrays • Embryology charts - GIT (foregut/rotation of midgut/hindgut) Systemic Histology: • Salivary glands: Serous & mucous • Esophagus,Stomach • Duodenum, Jejunum,Ileum • Gallbladder

			• Large intestine • Liver • Pancreas
		9.1.4 **(ECE)**	• Surgery - OT - observe abdominal surgery (inguinal hernia/appendectomy) • Department of Radiology - Ultrasonography - Abdomen
	9.2	**PHYSIOLOGY**	**GASTROINTESTINAL SYSTEM, HEPATOBILIARY & PANCREATIC SYSTEM & NUTRITION**
		9.2.1 **(Theory)**	• GIT: Organization, Innervation, Overview of GI motility • Salivary secretion • Mastication, Deglutition • Stomach- Structure, Functions, Secretion of gastric juice • Regulation of gastric secretion, Peptic ulcer • Motility of stomach, gastric emptying and its regulation. • Exocrine pancreas – functional anatomy, secretion, regulation • Liver & Gall bladder • Small intestine: Secretion, Absorption, Motility • Large intestine: Secretion, Absorption, Motility
		9.2.2 **(Theory SDL)**	• Pancreatic function tests and Liver function tests • Gastrointestinal Hormones • Digestion and absorption of carbohydrate / protein / fat in the GI tract • Gastrointestinal flora, GI lymphoid organs and Immune functions
		9.2.3 **(Practical)**	• Revision of clinical practicals
		9.2.4 **(ECE)**	• Visit to medicine department
	9.3	**BIOCHEMISTRY**	**GASTROINTESTINAL SYSTEM, HEPATOBILIARY & PANCREATIC SYSTEM, NUTRITION,MOLECULAR BIOLOGY & CANCER BIOLOGY**
		9.3.1 **(Theory)**	**Gastrointestinal system and Nutrition** • Digestion and absorption of carbohydrates,lipids, proteins • Branched chain amino acids,polyamines • Micronutrients; Vitamins ,Minerals • Energy metabolism& Nutrition **Hepatobiliary and Pancreatic function tests** • Bile acidsynthesis • Bilirubin metabolism • Types of jaundice and their biochemical alterations • Xenobiotics **MolecularBiology& Cancer Biology** • Nucleotide chemistry and metabolism,Gout • Replication, transcription, translation and Inhibitors • Regulation ofgene expression • Mutation, Genetic code • Molecular Diagnostic Techniques: PCR , Blotting

			• rDNA Technology • Tumor markers, oncogenes, tumorsuppressor genes • Radio Active Isotopes
		9.3.2 **(Theory SDL)**	• Inborn errors of amino acid metabolism • Diet therapy in disease conditions,PEM • Interpretation of LFT, Pancreatic function tests • HGP, Gene therapy
		9.3.3 **(Practical)**	• Estimation of Total Protein and Albumin • Demonstration of Electrophoresis and Chromatography
		9.3.4 **(ECE)**	• Jaundice –Types , Clinical presentation • Wilson's disease- case report & videos • Protein Energy Malnutrition-clinical presentation, pictures • Gout – clinical presentation, videos • Vitamins deficiency disorders- clinical presentation , pictures • Diarrhoea – clinical findings • Normal pregnancy
		AETCOM / Professional Development Programme	• Competencies related to AETCOM in an Indian Medical Graduate
10.	**REPRODUCTIVE SYSTEM & MAMMARY GLAND**		
	10.1	**ANATOMY**	**REPRODUCTIVE SYSTEM & MAMMARY GLAND**
		10.1.1 **(Theory**)	Gross anatomy: • Testis • Prostate • Uterus, fallopian tube andovaries • Mammarygland Systemic Histology: • Male reproductive system: Testis, ductus deferens, Epididymis. Prostate • Female reproductive system:Uterus, Fallopian tube, Ovary Embryology: • Development of male & female reproductivesystems
		10.1.2 **(Theory SDL**)	• Male & female external genitalia • Remnants of mesonephric and paramesonephricducts • Hydrocoele • Undescended testis

		10.1.3 **(Practical)**	Dissection: ● Male reproductive organs (Male external genitalia, & prostate, Testis, seminalvesicles) ● Female reproductive organs (Uterus & vagina,Supports of uterus andOvaries) ● Lateral pelvicwall ● Sagittal Sections of pelvic cavity – Male andfemale Demonstration: ● Radiology: Plain Xray Pelvis/HSG Systemic Histology: ● Male reproductive system:Testis, ductus deferens epididymis ● Female reproductive system:Uterus, fallopian tube& ovary Embryology charts: ● Development of male & female reproductivesystems
		10.1.4 **(ECE)**	● OBG - Labour room - Observe normal delivery ● Skills lab - Per Rectal Examination
	10.2	**PHYSIOLOGY**	**REPRODUCTIVE SYSTEM**
		10.2.1 **(Theory**)	• Sex determination & differentiation • Puberty: Stages of puberty in male and female and its control and applied aspects • Spermatogenesis • Testicular hormones • Oogenesis • Ovarian hormones • Ovarian cycle and menstrual cycle • Pregnancy- fertilization and implantation, pregnancy changes and parturition. • Placental hormones and pregnancy tests, feto-placental unit, • Contraceptive methods
		10.2.2 **(Theory SDL**)	• Male & female reproductive organs • Physiology of breast development and lactation
		10.2.3(Practical)	• Revision of hematology practicals
		10.3.4 **(ECE)**	• Visit to OG department / Discussion of case studies • Visit to central lab for pregnancy tests

	10.3	**BIOCHEMISTRY**	**REPRODUCTIVE SYSTEM**
		10.3.1(Theory)	• Biosynthesis of GonadalHormones • Gonadal functiontest • Prenatal screeningtest
		10.3.2 (Theory SDL)	• Disorders of Gonadal hormonalfunction
		10.3.3(Practical)	• NoPractical
		10.3.4(ECE)	• Normal pregnancy • Dysfunctional Uterine Bleeding • Acne Vulgaris
		AETCOM / Professional Development Programme	➢ Use of Reflective Writing and Narratives in Medical Education

Department of Community Medicine
I MBBS (2019 – 2020 Batch)

Total : 52 hours
Lectures – 20 Hours (20 x 1 hour)

S. No.	Topic
1.	Man and medicine : Towards health for all (Medicine in antiquity, Dawn of scientific medicine)
2.	Man and medicine : Towards health for all (Modern medicine, Rise of public health)
3.	Man and medicine : Towards health for all (Health care revolution, Primary Health care)
4.	Concepts of health
5.	Dimensions of health
6.	Concepts of well –being (Standard of living, Quality of life)
7.	Determinants of health
8.	Indicators of health
9.	Concept of Disease & Concept of Causation
10.	Natural history of disease
11.	Concepts of prevention (Levels of prevention)
12.	Concepts of prevention (Modes of intervention)
13.	Nutrition & Health –Introduction
14.	Nutritional problems in India-LBW, Malnutrition
15.	Vitamin A deficiency
16.	Nutritional anemia
17.	Iodine deficiency disorders (IDD)
18.	Food Hygiene-Milk hygiene
19.	Food borne diseases –Food toxicants
20.	Food adulteration

SMALL GROUP DISCUSSION -27 HOURS (9X3HRS)

S. No.	Topic
1.	Immunity & Immunisation
2.	Vaccines
3.	National Immunisation Schedule
4.	Cold Chain
5.	Adverse Events Following Immunisation (AEFI)
6.	Demographic cycle & Demographic trends in India
7.	Fertility related statistics
8.	Family Planning & Contraceptive Methods
9.	Abortion & MTP Act

SELF DIRECTED LEARNING – 5HOURS

S. No.	Topic	
1.	Epidemiological Study Designs - Case Control Study Cohort Study	3 hrs
2.	Screening for Diseases - Sensitivity & Specificity	2 hrs