

**SYSTEM-BASED & TEMPORARILY SYNCHRONIZED CONTENT  
DEPARTMENTS OF ANATOMY, PHYSIOLOGY, BIOCHEMISTRY  
I MBBS SYSTEM-BASED AND TEMPORARILY SYNCHRONIZED CONTENT  
(MODULES 1- 11)**

MODULE 1-3	SECTION	DEPARTMENT	NAME OF THE MODULE/DESCRIPTION	ECE	AETCO M	INTEGRATION	
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1			SESSION-1				
			GENERAL MODULE				
	1.1	ANATOMY	GENERAL ANATOMY				
		1.1.1 (Theory)	<ul style="list-style-type: none"> <li>● Introduction to Anatomy – Anatomical terms</li> <li>● Introduction to Skeletal system – Bones</li> <li>● Introduction to Skeletal system – Joints</li> <li>● Introduction to Muscular system</li> <li>● Introduction to Vascular system and Lymphatic system</li> <li>● Introduction to Nervous System</li> <li>● Introduction to Integumentary System</li> </ul>	✓			
		1.1.2 Theory (SDL)	<ul style="list-style-type: none"> <li>● Types of ossification</li> </ul>				
		1.1.3 (Practical)	<ul style="list-style-type: none"> <li>● Anatomical position, terms, planes &amp; sections</li> <li>● Skeletal system</li> <li>● Muscular system</li> <li>● Nervous system</li> <li>● Vascular system and lymphatic system</li> <li>● Integumentary system</li> </ul>				
	1.2	PHYSIOLOGY	<b>GENERAL PHYSIOLOGY</b>				
		1.2.1 (Theory)	<ul style="list-style-type: none"> <li>● Importance of Physiology in medicine</li> <li>● Functional organization of human body, Principles of Homeostasis and physiological control mechanism</li> <li>● Intercellular connections and Communications</li> <li>● Transport across cell</li> </ul>				

			membrane ● Body fluids: Principles and methods of measurement of body fluid compartments	CR - oedema		✓	
		<b>1.2.2 (Theory SDL)</b>	● Functional organization of Cell and its organell				
		1.2.3 (Practical)	● Introduction ● Microscopy and collection of blood samples				
		BIOCHEMISTRY	<b>GENERAL BIOCHEMISTRY</b>				
6 weeks		1.3.1 (Theory)	● Cell and sub cellular organelles , membrane transport ● Enzyme kinetics, Inhibition and regulation of enzyme activity, Isoenzymes: ● Chemistry of carbohydrates / lipids / proteins: ● Enzymes in clinical diagnosis:	✓			
		1.3.2 (Theory SDL)	● Enzymes in clinical diagnosis:				
		1.3.3 (Practical)	● Color reactions of carbohydrates ● Color reactions of proteins				
<b>2 GENERAL EMBRYOLOGY, GENETICS, GENERAL HISTOLOGY, HEMATOLOGICAL SYSTEM &amp; IMMUNOLOGICAL SYSTEM</b>							
	<b>2.1 ANATOMY</b>		<b>GENERAL EMBRYOLOGY, GENETICS &amp; GENERAL HISTOLOGY</b>				
		<b>2.1.(Theory)</b>	<b>GENERAL EMBRYOLOGY</b> ● Gametogenesis ● Iweek of development ● II week of development ● III week of development ● Embryonic period ● Placenta & umbilical cord ● Twinning & teratogens <b>GENETICS</b> ● Structural aberrations of chromosomes	✓			OG PHARM

			<ul style="list-style-type: none"> <li>• Numerical aberrations of chromosomes</li> <li>• Modes of inheritance</li> <li>• Prenatal diagnosis and Genetic counseling</li> </ul>				OG
		<b>2.1.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Structure &amp; Classification of chromosomes</li> <li>• Karyotyping</li> </ul>				
		<b>2.1.3 (Practical)</b>	<b>General Histology Practical:</b> <ul style="list-style-type: none"> <li>• Epithelial tissue</li> <li>• Connective tissue-General</li> <li>• Cartilage</li> <li>• Bone</li> <li>• Muscular tissue</li> <li>• Peripheral Nerve &amp; Autonomic Ganglia</li> <li>• Blood vessels</li> <li>• Lymphoid organs-I</li> <li>• Lymphoid organs-II</li> <li>• Skin</li> <li>• Demonstration of Embryology models</li> <li>• Demonstration of genetics models</li> </ul>				
	<b>2.2</b>	<b>PHYSIOLOGY</b>	<b>HEMATOLOGY &amp; IMMUNOLOGY</b>				
		<b>2.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Introduction to blood and Functions of plasma proteins</li> <li>• Abnormal Hemoglobins, Jaundice &amp; Physiological basis of Jaundice</li> <li>• Classification and physiological basis of Anemia; Hematinic Factors</li> <li>• Physiological basis of investigations for Anemia and Jaundice</li> <li>• Blood Grouping, physiological basis of blood transfusion and its reactions (2)</li> <li>• White blood cells – Structure, Functions and fate</li> </ul>	H- *jaundice H- *blood grouping		✓	

			<p>of WBCs</p> <ul style="list-style-type: none"> <li>• Principles of Haemopoiesis and Bone marrow microenvironment</li> <li>• Erythropoiesis – Principles and Regulation</li> <li>• Leucopoiesis - Principles and regulation</li> <li>• Immunity and Development of immunity</li> <li>• Adaptive immunity and its mechanisms</li> <li>• Immune Response and Complement System</li> <li>• Immune tolerance, Immunotherapy, Immunodeficiency and Immunomodulation</li> <li>• Thrombopoiesis, structure, functions and fate of Platelets</li> <li>• Hemostasis and Clotting mechanisms</li> <li>• Haemostatic Balance – Anti-haemostatic and prohaemostatic mechanisms</li> <li>• Haemorrhagic Disorders</li> <li>• Tests for Platelet and Clotting functions</li> </ul>				Pathology
		<b>2.2.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Red Blood Cell – Structure, Functions and fate of RBCs</li> <li>• Red blood cell turnover</li> <li>• Lymphoid organs and Lymph</li> <li>• Innate immunity and its mechanisms</li> </ul>				
		<b>2.2.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Hb estimation</li> <li>• Hemocytometry &amp; PCV</li> <li>• Revision of Hemoglobin</li> <li>• RBC Count</li> <li>• ESR and Osmotic fragility</li> <li>• Peripheral Smear</li> <li>• TLC</li> <li>• DLC</li> <li>• Blood Group, BT, CT</li> </ul>				

			<ul style="list-style-type: none"> <li>• Arneth Count</li> <li>• Revision Blood Group, BT, CT</li> <li>• AEC</li> <li>• Platelet &amp; Retic demo</li> <li>• Revision of TLC, RBC</li> <li>• Revision of Hb, BT &amp; CT</li> <li>• Revision of hematology</li> </ul>				
	<b>2.3</b>	<b>BIOCHEMISTRY</b>	<b>HEMATOLOGY &amp; IMMUNOLOGY</b>				
4 weeks		<b>2.3.1 (Theory)</b>	Immunoglobulin structure and types, Immunological techniques, Multiple myeloma Hemoglobin; Structure and function Heme: Synthesis, Catabolism and disorders Anemia: Vitamins : B12 , K, folic Acid , B6, Iron Hemoglobinopathies	✓	Module 1.1 (4hrs)	✓	
		<b>2.3.2 (Theory SDL)</b>	Biochemical Investigations in Anemia				
		<b>2.3.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Demonstration of immunological techniques (ELISA).</li> <li>Demonstration of Hb and its derivatives</li> </ul>				
<b>3</b>	<b>LOCOMOTOR SYSTEM &amp; AUTONOMIC NERVOUS SYSTEM</b>						
	<b>3.1</b>	<b>ANATOMY</b>	<b>LOCOMOTOR SYSTEM</b>				
		<b>3.1.1 (Theory)</b>	<b>LOCOMOTOR SYSTEM – Upper Limb</b> <ul style="list-style-type: none"> <li>• AT-COM</li> <li>• Introduction &amp; development of locomotor system, pectoral region</li> <li>• Axilla</li> <li>• Shoulder joint complex</li> <li>• Elbow &amp; wrist joints</li> <li>• Hand – muscles, vessels &amp; nerves</li> <li>• Hand – spaces</li> <li>• Nerve injuries of upper limb</li> <li>• Venous &amp; lymphatic drainage of upper limb</li> </ul> <b>LOCOMOTOR SYSTEM – Lower Limb</b>	✓		✓	ORTHO ORTHO

			<ul style="list-style-type: none"> <li>● Introduction, femoral triangle, adductor canal</li> <li>● Hip joint</li> <li>● Popliteal fossa</li> <li>● Knee joint</li> <li>● Ankle joint, joints of foot</li> <li>● Arches of foot</li> <li>● Venous drainage of lower limb</li> </ul>	✓			SURG ERY
		<b>3.1.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>● Cubital fossa</li> <li>● Intermuscular spaces around shoulder</li> <li>● Radioulnar joints</li> <li>● Hand grips</li> <li>● Femoral canal</li> <li>● Saphenous opening</li> <li>● Tibiofemoral joints</li> <li>● Gait</li> </ul>				
		<b>3.1.3 (Practical)</b>	<p><b>LOCOMOTOR SYSTEM – Upper Limb</b></p> <p>Gross</p> <ul style="list-style-type: none"> <li>● Pectoral region</li> <li>● Axilla</li> <li>● Scapular region</li> <li>● Arm</li> <li>● Forearm</li> <li>● Hand</li> <li>● Surface anatomy &amp; radiology</li> </ul> <p>Osteology</p> <ul style="list-style-type: none"> <li>● Clavicle, scapula</li> <li>● Humerus</li> <li>● Radius, ulna</li> <li>● Articulated hand</li> </ul> <p><b>LOCOMOTOR SYSTEM – Lower Limb</b></p> <p>Gross</p> <ul style="list-style-type: none"> <li>● Front of thigh</li> <li>● Adductor compartment</li> <li>● Gluteal region</li> <li>● Posterior compartment of thigh</li> <li>● Popliteal fossa</li> <li>● Anterior &amp; lateral compartment of leg and</li> </ul>				

			dorsum of foot <ul style="list-style-type: none"> <li>• Posterior compartment of leg &amp; retinacula around ankle</li> <li>• Sole</li> <li>• Surface anatomy &amp; radiology</li> </ul> Osteology <ul style="list-style-type: none"> <li>• Hip bone</li> <li>• Femur</li> <li>• Tibia &amp; fibula</li> </ul> Articulated foot				
	<b>3.2</b>	<b>PHYSIOLOGY</b>	<b>LOCOMOTOR SYSTEM &amp; AUTONOMIC NERVOUS SYSTEM</b>				
		<b>3.2.1</b>	<b>Theory</b> <ul style="list-style-type: none"> <li>• Resting Membrane Potential</li> <li>• Nerve</li> <li>• Neuromuscular junction</li> <li>• Skeletal Muscle</li> <li>• Smooth muscle</li> <li>• Autonomic nervous system : functional organization</li> <li>• Sympathetic and para sympathetic systems</li> <li>• Autonomic function tests</li> </ul>			✓	Medicine & Pharmacology
		<b>3.2.2</b>	<b>Theory SDL</b> <ul style="list-style-type: none"> <li>• Dysfunctions of autonomic nervous system</li> </ul>				
		<b>3.2.3</b>	<b>Practical</b> <ul style="list-style-type: none"> <li>• Mosso"sErgography</li> <li>• Nerve conduction test and Surface EMG</li> <li>• Lying to standing</li> <li>• Deep breathing difference</li> <li>• Isometric handgrip test</li> <li>• Cold pressor test</li> </ul>				
	<b>3.3</b>	<b>BIOCHEMISTRY</b>	<b>LOCOMOTOR SYSTEM &amp; AUTONOMIC NERVOUS SYSTEM</b>				
3 weeks		<b>3.3.1</b>	<b>Theory</b> Minerals: (except iron) <ul style="list-style-type: none"> <li>• Vitamins: Vitamin D , B1,B2, A, C, biotin, and pantothenic acid</li> <li>• Deficiency disorders</li> </ul>	✓	✓		
		<b>3.3.2</b>	<b>Theory SDL</b>				

			<ul style="list-style-type: none"> <li>• Vitamin and mineral deficiency disorders and management</li> </ul>				
		<b>3.3.3</b>	<b>Practical</b> <ul style="list-style-type: none"> <li>• Demo of calcium and Phosphorus estimation</li> </ul>				
<b>4</b>	<b>ENDOCRINE SYSTEM, POSTNATAL GROWTH &amp; DEVELOPMENT</b>						
	<b>4.1</b>	<b>ANATOMY</b>	<b>ENDOCRINE SYSTEM</b>				
		<b>4.1.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Pituitary gland- Gross, microscopic and developmental anatomy</li> <li>• Thyroid and parathyroid - Gross anatomy</li> <li>• Thyroid and parathyroid - Microscopic and developmental anatomy</li> <li>• Adrenal gland - Gross, microscopic and developmental anatomy Postnatal growth and development- I, II, III, IV</li> </ul>			BIOCHEM & PHYSIO	
		<b>4.1.2 (Theory &amp;SDL)</b>	<ul style="list-style-type: none"> <li>• Islets of Langerhans</li> <li>• Diffuse Endocrine system</li> </ul>				
		<b>4.1.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Demonstration of gross specimen</li> <li>• Demonstration of embryology models</li> <li>• Histology - pituitary and adrenal gland</li> <li>• Histology - thyroid and parathyroid</li> </ul>				
	<b>4.2</b>	<b>PHYSIOLOGY</b>	<b>ENDOCRINE SYSTEM</b>				
		<b>4.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Mechanisms of hormonal action</li> <li>• Pituitary Gland and Hypothalamus, Hypothalamo-Pituitary-Endocrine axis</li> <li>• Anterior Pituitary hormones</li> <li>• Hormones from Posterior and Intermediate lobe of Pituitary, Hypothalamic Hormones</li> <li>• Endocrine disorders of Hypothalamus and pituitary</li> </ul>	CR-Dwarfism	Module 1.2 (8 hrs)		



			<p>gland</p> <ul style="list-style-type: none"> <li>● Thyroid Hormone – Biosynthesis, Secretion and Regulation of thyroid secretion</li> <li>● Physiological effects of Thyroid Hormone</li> <li>● Endocrine disorders of thyroid gland</li> <li>● Adrenocortical hormones – Biosynthesis, Functions and Regulation of secretion</li> <li>● Endocrine disorders of Adrenal gland</li> <li>● Endocrine Pancreas – insulin &amp; glucagon- Biosynthesis, Secretion, Functions and Regulation of secretion</li> <li>● Disorders of endocrine pancreas</li> <li>● Hormones of Calcium Homeostasis - Biosynthesis, Functions and Regulation of secretion</li> <li>● Disorders of Calcium Homeostasis</li> <li>● Pineal gland</li> <li>● Hormonal changes in Stress response</li> </ul>	<p>H-thyroid disorders,</p> <p>H-Cushings syndrome, Diabetes Mellitus, Osteoporosis</p>		✓	
		<b>4.2.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>● Introduction and General Principles of regulation of endocrine secretions</li> <li>● Thyroid function tests</li> <li>● Adrenomedullary hormones – Biosynthesis, Functions and Regulation of secretion</li> <li>● Local hormones</li> </ul>				
		<b>4.2.3 (Practical)</b>	CVS and RS practicals will be taken during these 3 weeks" time				
	<b>4.3</b>	<b>BIOCHEMISTRY</b>	<b>ENDOCRINE SYSTEM</b>				
1 week		<b>4.3.1 (Theory)</b>	<ul style="list-style-type: none"> <li>● Mechanism of hormone action.</li> <li>● Thyroid function tests,</li> </ul>	✓	✓	✓	

		<b>4.3.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>● Interpretation of thyroid and adrenal function test</li> </ul>				
		<b>4.3.3 (Practical)</b>	<ul style="list-style-type: none"> <li>● Demonstration of TFT</li> </ul>				
<b>5</b>	<b>RESPIRATORY SYSTEM</b>						
	<b>5.1</b>	<b>ANATOMY</b>	<b>RESPIRATORY SYSTEM</b>				
		<b>5.1.1 (Theory)</b>	<ul style="list-style-type: none"> <li>● Introduction of respiratory system, paranasal air sinuses</li> <li>● Nasal cavity &amp; Nasopharynx</li> <li>● Larynx I</li> <li>● Larynx II</li> <li>● Thoracic cage, inlet , outlet, intercostal space</li> <li>● Intercostal muscles, nerves and vessels</li> <li>● Diaphragm</li> <li>● Pleura</li> <li>● Trachea, bronchi &amp; Broncho-pulmonary segments</li> <li>● Development of respiratory system</li> </ul>	✓	Module 1.3 (6 hrs)		ENT
		<b>5.1.2 (Theory &amp; SDL)</b>	<ul style="list-style-type: none"> <li>● Cross sectional anatomy of thoracic cavity</li> <li>● Diaphragmatic hernia</li> </ul>				
		<b>5.1.3 (Practical)</b>	<ul style="list-style-type: none"> <li>● Thoracic vertebra &amp; sternum</li> <li>● Thoracic ribs, joints</li> <li>● Nasal cavities, nasopharynx</li> <li>● Lungs – right and left</li> <li>● Histology of trachea, bronchi, lung, epiglottis</li> <li>● Embryology models</li> <li>● Radiological anatomy of respiratory system- nasal cavity, paranasal sinuses</li> <li>● chest x-ray</li> <li>● Surface anatomy of respiratory system</li> </ul>				
	<b>5.2</b>	<b>PHYSIOLOGY</b>	<b>RESPIRATORY SYSTEM</b>				
		<b>5.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>● Functional organization &amp; non respiratory functions of RS</li> <li>● Mechanics of breathing &amp; compliance</li> <li>● Pulmonary</li> </ul>	CR-Respiratory distress			

			surfactant&Transport of gases ● Regulation of respiration ● Application of PFT – Obstructive vs Restrictive ● Respiration in altered barometric pressure	syndr ome H- Bronc hial asthm a, Fibros is of lung			
		<b>5.2.2 (Theory &amp; SDL)</b>	● Lung Volumes & capacities ● Classification & Methods of estimating PFT ● Oxygen therapy ● Abnormal respiration ● Assisted Ventilation & CPR	CR- Abnor mal respir ation			
		<b>5.2.3 (Practical)</b>	● Stethography ● Effect of posture on vital capacity ● Clinical Examination of RS ● PFT (demo)				
	<b>5.2</b>	<b>BIOCHEMISTRY</b>	<b>RESPIRATORY SYSTEM</b>				
1 week		<b>5.3.1 (Theory)</b>	● General aspects of acid base balance and regulation of blood pH and related disorders ● Interpretation of acid base disorders	✓			✓
		<b>5.3.2 (Theory &amp; SDL)</b>	● Interpretation of acid base disorders				
		<b>5.3.3 (Practical)</b>	● Demo of ph meter				
<b>6</b>	<b>CARDIOVASCULAR SYSTEM</b>						
	<b>6.1</b>	<b>ANATOMY</b>	<b>CARDIOVASCULAR SYSTEM</b>				
		<b>6.1.1 ( Theory )</b>	● Introduction to CVS, Mediastinum and contents ● Pericardium and Pericardial sinuses ● Blood supply to heart ● Chambers of heart-I&Chambers of heart-II ● Superior mediastinum&Posterior mediastinum ● Embryology-developmentof				MED  PEAD

			heart, aortic arches, major veins				
		<b>6.1.2</b> ( Theory SDL)	<ul style="list-style-type: none"> <li>● Nerve supply to heart, heart valve complex</li> <li>● Atrial and ventricular septal defects, TOF, PDA, Coarctation of aorta</li> <li>● Fetal circulation</li> </ul>	✓			
		<b>6.1.3</b> ( Practical)	<ul style="list-style-type: none"> <li>● Location of heart, pericardium and pericardial sinuses</li> <li>● External features of heart, blood vessels of the heart</li> <li>● Internal features of chambers of the heart</li> <li>● Superior mediastinum&amp;Posterior mediastinum</li> <li>● Surface and radiological anatomy</li> <li>● Embryology models</li> </ul>				
	<b>6.2</b>	<b>PHYSIOLOGY</b>	<b>CARDIOVASCULAR SYSTEM</b>				
		<b>6.2.1</b> ( Theory )	<ul style="list-style-type: none"> <li>● Properties of cardiac muscle</li> <li>● Conductive system of heart</li> <li>● Electrophysiology of heart and ECG</li> <li>● Cardiac cycle</li> <li>● Cardiac output</li> <li>● Regulation of heart rate</li> <li>● Cardiac hemodynamics</li> <li>● Blood pressure (mechanism &amp;regulation)</li> <li>● Hypertension</li> <li>● Hypotension &amp; shock</li> <li>● Heart failure &amp; its management</li> <li>● Cerebral circulation</li> <li>● Coronary circulation</li> <li>● Cutaneous &amp; Splanchnic circulation</li> <li>● CVS, RS changes during exercise</li> </ul>	CR- heart block  H- JVP, Heart sound - murmur, heart failure			Pharmacology, Medicine
		<b>6.2.2</b> ( Theory SDL)	<ul style="list-style-type: none"> <li>● Functional anatomy of heart</li> <li>● JVP and heart sounds</li> <li>● Physiology of blood vessels</li> </ul>				

			<ul style="list-style-type: none"> <li>• Fetal circulation</li> </ul>				
		<b>6.2.3 ( Practical)</b>	<ul style="list-style-type: none"> <li>• Examination of peripheral pulses &amp; recording of BP</li> <li>• ECG</li> <li>• Effect of posture on BP</li> <li>• Effect of exercise on BP</li> <li>• Systolic time interval (demo)</li> <li>• Examination of cardiovascular system</li> <li>• Cardiac AFT</li> </ul>				
	<b>6.3</b>	<b>BIOCHEMISTRY</b>	<b>CARDIOVASCULAR SYSTEM</b>				
5 weeks		<b>6.3.1 ( Theory )</b>	<ul style="list-style-type: none"> <li>• Collagen – structure, disorders</li> <li>• Lipid metabolism, prostaglandins</li> <li>• Sulphur containing aa, Homocysteine metabolism and disorders</li> </ul>	<ul style="list-style-type: none"> <li>• Free radicals and antioxidants</li> <li>• Interpretation of lipid profile and hyperlipoproteinemias.</li> <li>• Detoxification of xenobiotics</li> </ul>	✓	Module 1.4 (2 hrs)	✓
		<b>6.3.2 ( Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Hyper lipoproteinemia, metabolic syndrome</li> </ul>				
		<b>6.3.3 ( Practical)</b>	<ul style="list-style-type: none"> <li>• Calorimeter, estimation of cholesterol and demo of Troponin T</li> </ul>				
<b>7</b>	<b>GASTROINTESTINAL SYSTEM, HEPATOBILIARY &amp; PANCREATIC SYSTEM &amp; NUTRITION</b>						
	<b>7.1</b>	<b>ANATOMY</b>	<b>GASTROINTESTINAL SYSTEM, HEPATOBILIARY &amp; PANCREATIC SYSTEM</b>				
		<b>7.1.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Introduction to GIT &amp; Anterolateral abdominal wall</li> <li>• Inguinal Canal</li> <li>• Peritoneum</li> <li>• Pharynx and Oesophagus</li> <li>• Stomach</li> <li>• Duodenum</li> <li>• Pancreas</li> <li>• Liver</li> </ul>		✓		SURG  SURG

			<ul style="list-style-type: none"> <li>● Extrahepatic Biliary Apparatus</li> <li>● Portal vein &amp; Portosystemic Anastomosis</li> <li>● Caecum &amp; Vermiform Appendix</li> <li>● Rectum</li> <li>● Anal Canal, Ischio-anal fossa</li> <li>● Development of GIT</li> </ul>	✓	✓		MED
		<b>7.1.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>● Oral cavity</li> <li>● Inguinal Hernia</li> <li>● Surgical Incisions</li> <li>● Pyloric stenosis</li> </ul>				
		<b>7.1.3 (Practical)</b>	<p><b>Gross Anatomy Demonstration</b></p> <ul style="list-style-type: none"> <li>● Anterolateral Abdominal Wall &amp; Inguinal Canal</li> <li>● Peritoneal folds and recesses</li> <li>● Stomach , Duodenum &amp; Coeliac Trunk</li> <li>● Jejunum , Ileum &amp; Superior Mesenteric Artery</li> <li>● Caecum &amp; Appendix</li> <li>● Colon, Rectum, Anal Canal &amp; Inf. Mesenteric Artery</li> <li>● Liver</li> <li>● Extrahepatic Biliary Apparatus &amp; Portal vein</li> <li>● Pancreas</li> <li>● Spleen</li> </ul> <p><b>Osteology :</b></p> <ul style="list-style-type: none"> <li>○ Lumbar Vertebra &amp; Sacrum</li> <li>○ Osteology of Pelvis</li> </ul> <ul style="list-style-type: none"> <li>● <b>Surface anatomy of all organs of GIT</b></li> <li>● <b>Radiology - Plain and contrast Radiographs</b></li> <li>● <b>Demonstration of GIT</b></li> </ul> <p><b>Embryology models</b></p> <p><b>Histology:</b></p> <ul style="list-style-type: none"> <li>○ Salivary Glands- Serous, Mucous, Mixed</li> <li>● Esophagus, Stomach</li> <li>● Duodenum, Jejunum, Ileum</li> </ul>				

			<ul style="list-style-type: none"> <li>• Colon, Appendix</li> <li>• Liver, Gallbladder, Pancreas</li> </ul>				
	<b>7.2</b>	<b>PHYSIOLOGY</b>	<b>GASTROINTESTINAL SYSTEM, HEPATOBILIARY &amp; PANCREATIC SYSTEM &amp; NUTRITION</b>				
		<b>7.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Functional organization of gastrointestinal tract and principles of GI tract</li> <li>• Enteric nervous System and applied aspects</li> <li>• Overview of Gastrointestinal Motility and Electro-mechanical Events in GI Tract</li> <li>• Role of Oral cavity and Salivary glands in GI Function</li> <li>• Role of Esophagus in GI Function; Deglutition and Esophageal motility</li> <li>• Functional organization of Stomach and its Electro-mechanical activities</li> <li>• Gastric Acid Secretion and its Regulation</li> <li>• Gastric function tests and Peptic Ulcer disease</li> <li>• Exocrine Pancreas – Secretion and Regulation</li> <li>• Duodenum – Secretory, Digestive and Absorptive Events</li> <li>• Liver – Functional organization and role in Digestion</li> <li>• Gall bladder - Functional organization and role in Digestion</li> <li>• Small intestine – Secretion,</li> </ul>	CR-Sialolith		✓	Medicine, Pharmacology Medicine

			<p>absorption, motility and electromechanical properties</p> <ul style="list-style-type: none"> <li>• Large Intestine – Absorption, secretion, motility and electromechanical properties</li> <li>• Review of Gastrointestinal Motility and applied aspects</li> <li>• Upper and Lower GI disorder &amp; Problem based learning</li> </ul>				
		<b>7.2.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Pancreatic function tests and Liver function tests</li> <li>• Gastrointestinal Hormones</li> <li>• Digestion and absorption of carbohydrate / protein / fat in the GI tract</li> <li>• Gastrointestinal flora, GI lymphoid organs and Immune functions</li> </ul>				
		<b>7.2.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Abdominal examination</li> </ul>				
	<b>7.3</b>	<b>BIOCHEMISTRY</b>	<b>GASTROINTESTINAL SYSTEM, HEPATOBILIARY &amp; PANCREATIC SYSTEM &amp; NUTRITION</b>				
8 weeks		<b>7.3.1 (Theory)</b>	<p><b>Gastrointestinal system and Nutrition</b></p> <ul style="list-style-type: none"> <li>• Digestion and absorption of carbohydrates, lipids, amino acids</li> <li>• Metabolism of carbohydrates (major and minor) and amino acids metabolism and inborn errors</li> <li>• Regulation of blood glucose, OGTT, Diabetes Mellitus, hypoglycemia, Integration of metabolism, ETC and biological oxidation</li> <li>• Plasma proteins, Nutrition</li> </ul> <p><b>Hepatobiliary and Pancreatic and gastric</b></p>	✓	✓	✓	✓



			<b>function tests</b> <ul style="list-style-type: none"> <li>• Bilirubin metabolism, Bile acid synthesis</li> <li>• Types of jaundice and their biochemical alterations</li> </ul>	✓			
		<b>7.3.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• PEM</li> <li>• Interpretation of LFT, Pancreatic function tests</li> </ul>				
		<b>7.3.3 (Practical)</b>	Demonstration of chromatography and electrophoresis <ul style="list-style-type: none"> <li>• Estimation of glucose</li> </ul> Bilirubin, protein				
<b>8</b>	<b>RENAL SYSTEM</b>						
	<b>8.1</b>	<b>ANATOMY</b>	<b>RENAL SYSTEM</b>				
		<b>8.1.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Kidney &amp; ureter</li> <li>• Urinary Bladder</li> <li>• Urethra Male &amp; Female</li> <li>• Development of Kidney, Ureter and Urinary Bladder</li> </ul>	✓	✓	✓	
		<b>8.1.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Renal Angle</li> <li>• Morris Parallelogram</li> </ul>				
		<b>8.1.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• <b>Gross</b> <ul style="list-style-type: none"> <li>○ Posterior Abdominal Wall</li> <li>○ Kidney &amp; its Relations</li> <li>○ Ureter</li> <li>○ Urinary Bladder</li> </ul> </li> <li>• <b>Histology</b> <ul style="list-style-type: none"> <li>○ Kidney</li> <li>○ Ureter and Urinary Bladder</li> </ul> </li> <li>• <b>Embryology Models</b></li> </ul>				
	<b>8.2</b>	<b>PHYSIOLOGY</b>	<b>RENAL SYSTEM</b>				
		<b>8.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Renal circulation-special features.</li> <li>• Measurement and regulation of renal circulation and clearance</li> <li>• Juxtaglomerular apparatus</li> <li>• Glomerular filtration &amp; GFR-Factors and measurement</li> <li>• Renin-Angiotensin-Aldosterone system</li> <li>• Tubular function (reabsorption, secretion and handling of solutes,</li> </ul>				

			<ul style="list-style-type: none"> <li>• electrolytes and water)</li> <li>• Mechanism of urine concentration and dilution</li> <li>• Role of kidney in Water and Osmolarity balance</li> <li>• Role of kidney in acid base balance</li> <li>• Micturition, Cystometrogram, Disorders of Bladder function and Micturition</li> <li>• Physiological basis of Renal failure, Dialysis</li> </ul>	CR-acid base disorders, Nephrotic syndrome, Renal failure			
		<b>8.2.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Functional organization of the renal system, Non-excretory functions of Kidney</li> <li>• Principle of Diuresis and Diuretics</li> </ul>				Pharmacology
		<b>8.2.3 (Practical)</b>	No Practical				
	<b>8.3</b>	<b>BIOCHEMISTRY</b>	<b>RENAL SYSTEM</b>				
2 week		<b>8.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Regulatory function: Water and electrolyte balance(Na,K,Cl)</li> <li>• Renal function test: Tests for glomerular and tubular functions</li> </ul>	✓	✓		✓
		<b>8.2.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Interpretation of RFT</li> <li>• Lab diagnosis of renal failure, nephritic/ nephrotic syndrome, Renal tubular acidosis</li> </ul>	✓			

		<b>8.2.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Urine analysis – normal and abnormal</li> <li>• Estimation of urea, creatinine</li> </ul> Demo of electrolyte analyser				
<b>9</b>	<b>REPRODUCTIVE SYSTEM &amp; MAMMARY GLAND</b>						
	<b>9.1</b>	<b>ANATOMY</b>	<b>REPRODUCTIVE SYSTEM &amp; MAMMARY GLAND</b>				
		<b>9.1.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• External genitalia – male and female</li> <li>• Testis and spermatic cord</li> <li>• Perineum</li> <li>• Pelvic diaphragm with pelvic peritoneal pouches</li> <li>• Prostate and accessory male reproductive organs</li> <li>• Uterus, Adnexa and ovaries&amp;</li> <li>• Lateral pelvic wall</li> <li>• Mammary gland</li> <li>• Development of reproductive system</li> </ul>	✓			SURG OG SURG
		<b>9.1.2 ( Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Prostatic urethra</li> <li>• Ambiguous genitalia</li> <li>• Remnants of mesonephric and paramesonephric ducts</li> </ul>				
		<b>9.1.3 ( Practical)</b>	Gross Anatomy: <ul style="list-style-type: none"> <li>• Male reproductive organs (Male external genitalia, &amp; prostate, Testis, seminal vesicles)</li> <li>• Female reproductive organs (Uterus with adnexa &amp; vagina, Supports of uterus and Ovaries)</li> <li>• Lateral pelvic wall</li> <li>• Sections of pelvic cavity – Male and female</li> <li>• Models for development of reproductive system</li> </ul> Histology: <ul style="list-style-type: none"> <li>• Testis, epididymis, Vas deferens</li> <li>• Seminal vesicle &amp; prostate, Penis, Uterus, Uterine tube</li> </ul>				

			<ul style="list-style-type: none"> <li>• Ovary, mammary gland, and placenta</li> </ul> Radiology:Hystero-salpingography, Cystoscopy				
	<b>9.2</b>	<b>PHYSIOLOGY</b>	<b>REPRODUCTIVE SYSTEM</b>				
		<b>9.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Sex differentiation and development</li> <li>• Male reproduction system</li> <li>• Female reproduction system</li> <li>• Physiology of pregnancy and parturition</li> <li>• Physiology of contraception</li> </ul>	CR- sex differentiation & determination & applied , Infertility, H- Physiology of pregnancy			
		<b>9.2.2 ( Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Physiology of breast development and lactation</li> </ul>				
		<b>9.2.3( Practical)</b>	<ul style="list-style-type: none"> <li>• No Practical</li> </ul>				
	<b>9.3</b>	<b>BIOCHEMISTRY</b>	<b>REPRODUCTIVE SYSTEM</b>				
1 week		<b>9.3.1(Theory)</b>	<ul style="list-style-type: none"> <li>• Biosynthesis of Gonadal Hormones</li> <li>• Gonadal function test</li> <li>• Prenatal and new born screening test</li> </ul>				
		<b>9.3.2 (Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Disorders of Gonadal hormonal function</li> </ul>				
		<b>9.3.3( Practical)</b>	<ul style="list-style-type: none"> <li>• No Practical</li> </ul>				
<b>10</b>	<b>NERVOUS SYSTEM, HEAD &amp; NECK, SPECIAL SENSES, MOLECULAR BIOLOGY, CANCER BIOLOGY &amp; INTEGRATIVE PHYSIOLOGY</b>						

		<b>10.1.1 Theory</b> <ul style="list-style-type: none"> <li>● Scalp</li> <li>● Posterior Triangle of neck</li> <li>● Anterior Triangle of neck</li> <li>● Parotid region</li> <li>● Submandibular region</li> <li>● Infratemporal fossa</li> <li>● Temporomandibular joint</li> <li>● Pharynx</li> <li>● Meninges &amp; Dural venous sinuses</li> <li>● Cavernous sinus</li> <li>● Development of Pharyngeal arches</li> <li>● Development of Arterial arches</li> <li>● Development of face &amp; palate</li> <li><b>Special senses:</b> <ul style="list-style-type: none"> <li>● Tongue</li> <li>● Eyeball</li> <li>● Extraocular muscles</li> <li>● External ear and middle ear</li> <li>● Internal ear</li> <li>● Development of eye</li> <li>● Development of ear</li> </ul> </li> <li><b>Central nervous system:</b> <ul style="list-style-type: none"> <li>● Spinal cord</li> <li>● Cranial nerve nuclei</li> <li>● Medulla</li> <li>● Pons</li> <li>● Midbrain</li> <li>● Thalamus &amp; Basal nuclei</li> <li>● Gross features &amp; White matter of cerebrum</li> <li>● Cerebellum</li> <li>● Ventricles of brain</li> <li>● Blood supply of brain</li> <li>● Development of Nervous system</li> </ul> </li> </ul>	✓	Module 1.5 (2hrs)			SURG
		<b>10.1.2</b> <ul style="list-style-type: none"> <li>● Cervical sympathetic chain</li> </ul>					

		<b>(Theory SDL)</b>	<ul style="list-style-type: none"> <li>● Pterygopalatine fossa</li> <li>● Lymphatic drainage of neck</li> <li>● Cross –section at C7</li> <li>● Eyelid and lacrimal apparatus</li> <li>● Blood-brain barrier &amp; CSF circulation</li> <li>● Circumventricular organs</li> <li>● Lumbar puncture</li> <li>● Limbic system</li> </ul>				
		<b>10.1.3 (Practical)</b>	<p><b>Gross Anatomy</b></p> <p><b>Head &amp; Neck</b></p> <ul style="list-style-type: none"> <li>● Face-Muscles, vessels &amp; Nerves</li> <li>● Triangles of neck</li> <li>● Parotid region</li> <li>● Submandibular region</li> <li>● Infratemporal fossa &amp; muscles of mastication</li> <li>● Pharynx</li> <li>● Dural venous sinuses</li> </ul> <p><b>Special senses</b></p> <ul style="list-style-type: none"> <li>● Tongue &amp; Eyeball</li> <li>● Orbit</li> <li>● Ear</li> </ul> <p><b>Central Nervous System</b></p> <ul style="list-style-type: none"> <li>● Spinal cord</li> <li>● Brainstem</li> <li>● Ventricles of brain</li> <li>● Thalamus &amp; Basal nuclei</li> <li>● Cerebrum</li> <li>● White fibres of cerebrum</li> <li>● Cerebellum</li> <li>● Radiology &amp; Surface Anatomy</li> </ul> <p><b>Osteology</b></p> <ul style="list-style-type: none"> <li>● Skull</li> <li>● Mandible &amp; Cervical Vertebrae</li> </ul> <p><b>Histology</b> (2 hrs/batch for Each topic)</p> <ul style="list-style-type: none"> <li>● Tongue</li> <li>● Cornea, optic nerve</li> <li>● Retina</li> <li>● Ear</li> <li>● Spinal cord</li> </ul>				

			<ul style="list-style-type: none"> <li>• Medulla</li> <li>• Pons &amp; Midbrain</li> <li>• Cerebrum &amp; Cerebellum</li> </ul>				
	<b>10.2</b>	<b>PHYSIOLOGY</b>	<b>CENTRAL NERVOUS SYSTEM, SPECIAL SENSES &amp; INTEGRATIVE PHYSIOLOGY</b>				
		<b>10.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Functional organization of nervous system</li> <li>• Synaptic transmission in CNS: and neurotransmitters</li> <li>• Introduction to sensory system : physiology of receptors</li> <li>• Sensory communication to spinal cord</li> <li>• Ascending pathways</li> <li>• Physiology of pain, itch and temperature</li> <li>• The Thalamus</li> <li>• The Sensory cortex</li> <li>• Applied sensory physiology</li> <li>• Introduction to and organization of motor system</li> <li>• Segmental organization of motor system</li> <li>• Muscle spindle and Golgi tendon organ</li> <li>• The spinal reflexes</li> <li>• Descending pathways</li> <li>• Regulation of posture and movement</li> <li>• Basal ganglia</li> <li>• cerebellum</li> <li>• Vestibular apparatus</li> <li>• Functions of hypothalamus</li> <li>• Reticular activating system, EEG and sleep</li> <li>• Limbic system</li> <li>• Physiology of learning and memory</li> <li>• Physiology of language and speech</li> <li>• Association cortex, cortical plasticity</li> </ul>	CR-Phantom limb	CR-reflexes, cerebellar disorders, gait, Hemiplegia,	✓	<p>Psychiatry</p> <p>Anaesthesia</p>

			<ul style="list-style-type: none"> <li>• Functional anatomy of eye</li> <li>• The image forming mechanisms</li> <li>• Visual pathway and visual cortex</li> <li>• Visual acuity, visual field</li> <li>• Color vision</li> <li>• Functional anatomy and functions of the ear</li> <li>• The auditory pathways</li> <li>• Mechanism of hearing</li> <li>• Hearing defects and hearing tests</li> <li>• Physiology of smell</li> <li>• Physiology of taste</li> </ul>	Par kins onis m CR- visu al acui ty, CSF,			
		<b>10.2.2</b> ( Theory SDL)	<ul style="list-style-type: none"> <li>• Trigeminal system</li> <li>• CSF</li> <li>• The photoreceptor mechanism</li> <li>• Movements of eye</li> </ul>				
		<b>10.2.3</b> ( Practical)	<ul style="list-style-type: none"> <li>• Examination of motor system</li> <li>• Reflexes</li> <li>• Examination of sensory system</li> <li>• Examination of cranial nerves (I - VI)</li> <li>• Examination of cranial nerves (VII-XII)</li> <li>• Perimetry</li> </ul>				
	<b>10.3</b>	<b>MOLECULAR BIOLOGY, CANCER BIOLOGY</b>					
4 weeks		<b>10.3.1</b> (Theory)	<ul style="list-style-type: none"> <li>• Nucleotide chemistry and metabolism, Gout</li> <li>• Replication, transcription, translation, regulation of gene Expression, cell cycle and mutation</li> <li>• Tumor markers, oncogene, tumor suppressor</li> <li>• Inhibitors of replication, transcription, translation</li> </ul>				✓
		<b>10.3.2</b> ( Theory SDL)	<ul style="list-style-type: none"> <li>• Genetic diseases and cancer</li> </ul>	✓			
		<b>10.3.3</b> ( Practical)	<ul style="list-style-type: none"> <li>• Demonstration of PCR, blotting, DNA finger printing</li> </ul>				



<b>11</b>	<b>ADVANCED</b>						
	<b>11.1</b>	<b>ANATOMY</b>					
		<b>11.1.1 (Theory)</b>	<b>Continuation of Central Nervous System- Cranial nerves</b>	✓		✓	MED
		<b>11.1.2 ( Theory SDL)</b>	<b>Continuation of Central Nervous System- Imaging techniques-CT, MRI</b>				
		<b>11.1.3 (Practical)</b>	<b>Continuation of Central Nervous System</b>				
	<b>11.2</b>	<b>PHYSIOLOGY</b>	<b>Continuation of Central Nervous System&amp; Advanced</b>				
		<b>11.2.1 (Theory)</b>	<ul style="list-style-type: none"> <li>• Physiology of Yoga</li> <li>• Physiology of Ageing</li> <li>• Physiology of Temperature regulation</li> <li>• Stem cell Physiology</li> <li>• Physiological basis of stress</li> <li>• Space physiology</li> </ul>				
		<b>11.2.2 ( Theory SDL)</b>	<ul style="list-style-type: none"> <li>• Stem cell therapy</li> </ul>				
		<b>11.2.3 (Practical)</b>	<ul style="list-style-type: none"> <li>• Evoked potentials demonstration</li> </ul>				
	<b>11.3</b>	<b>BIOCHEMSITRY</b>	<b>ADVANCES IN BIOCHEMISTRY</b>				
1 week		<b>11.3.1 ( Theory)</b>	<ul style="list-style-type: none"> <li>• Radioactivity, Genetic engineering and gene therapy</li> <li>• molecular diagnostics</li> </ul>				
		<b>11.3.2 ( Theory SDL)</b>	<ul style="list-style-type: none"> <li>• molecular biology techniques</li> </ul>				
		<b>11.3.3 (Practical)</b>	-				

- CR – Class Room
- H- Hospital