# RIHS MEDICAL & DENTAL COLLEGE

**-NEUROSCIENCES MODULE (10306)**
**-GENETCS MODULE (10307)**

**Session 2025-26**

**FIRST YEAR BDS STUDY GUIDE**

**BLOCK 3**

**PLANNED & DESIGNED BY:**

**DME,RIHS**

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| **Module 10305: NEUROSCIENCES MODULE(Year 1, block code- 03, module code 05)** | | |
| **Module 10306: GENETICS MODULE(Year 1, block code- 03, module code 06)** | | |
| **Session 2024-25**<br>**Pre-requisite: Block 2** | | |
| **Teaching faculty & Curriculum committee members** | | |
| | **Disciplines** | **Name of Faculty** |
| 1. | **Principal** | **Prof. Dr. Saad Asad** |
| 2. | **Anatomy** | **Dr. Maimoona Khan** |
| 3. | **Physiology** | **Dr. Atiya** |
| 4. | **Oral Biology** | **Dr. Nabeela Abbasi** |
| 5. | **Biochemistry** | **Dr. Maria Sarfraz** |
| 6. | **Pre-Prosthodontics** | **Dr. Amna Amjad** |
| 7. | **Pre-Operatives** | **Dr. Hina Tariq** |
| 8. | **Behavioral Sciences** | **Ms. Nargis Munir** |
| 9. | **DME** | **Dr. Madiha Akhwand** |
| **Block duration** | | **06 Weeks** |
| **Block Coordinator** | | **Dr. Nabeela Abbasi** |

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| **Integrated Curriculum** | • The Integrated Curriculum is becoming an increasingly popular concept internationally, in the field of Medicine.<br>• The goal of integration is to break down barriers between the basic and clinical sciences, currently in practice as a result of traditional curricular models.<br>• Integration should promote retention of knowledge and acquisition of skills through repetitive and progressive development of concepts and their applications.<br>• There are three areas in need of improvement and clarification for successful integration:<br>1. Ensuring synchronous presentation of material<br>2. Avoiding the tendency to diminish the importance of the basic sciences,and<br>3. Using unified definitions<br><br>(MEDICAL TEACHER)<br>• The model adapted in this institution is an **Integrated, modular, system based, spiral curriculum**.<br>• First spiral is for two years & second spiral is spread over three years. |
| **Students as a curriculum coordinator and Class Representative** | Student involvement in an integrated curriculum is the key to the process ofmaking him a self-directed, competent and ethical learner who can adjust and compete with the latest trends in medical education in todays and tomorrow's world. In order to achieve this:<br>1. Students will help the Module coordinators in accomplishing all tasks assigned to him/her.<br>2. They will be a part of curriculum planning and implementing team.<br>3. They will inform/discuss the ongoing activities /problems in teaching and learning with module coordinators and curriculum chairperson. |
| **Module Rationale:** | The modular rationale is centered on the integration of structural principles spanning various levels of magnification. Its core objective is to establish a foundational understanding of the relationship between structure and function and the general principles governing biological systems.<br><br>The human body's normal functioning relies on the harmonious interplay of structural, biochemical, and functional processes, all aimed at maintaining a stable internal environment. Any deviation from the norm in intracellular and extracellular biological events can lead to cellular dysfunction, resulting in degeneration, overgrowth, and the development of congenital or acquired abnormalities.<br><br>This module specifically delves into the fundamental structure of cells and their responses to variations in fluid levels, be it overload or depletion. |
| **Module Outcomes** | Upon completing Foundation module, students will achieve the following modular outcomes:<br><br>• Comprehend fundamental anatomical terminology for position and movement. |

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| | • Understand the structure, function, and physico-chemical aspects of cells.<br>• Demonstrate knowledge of general bone anatomy and microscopic epithelial, glandular, and connective tissue structures.<br>• Acquire understanding of early embryo development, oral histology, tooth development, and morphology.<br>• Appreciate the gross features of the skull and its clinical relevance through landmarks.<br>Upon completing Craniofacial-1 & Hematology module, students will attain the following modular outcomes:<br>• Understand the structure and function of cartilage, bone, joints, and muscles at both microscopic and macroscopic levels.<br>• Explain in detail the bones of the face and neck, radiographs of the skull, and various imaging techniques.<br>• Acquire knowledge about germ layer development and its derivatives, blood and blood vessel formation, and the ability to correlate normal development with abnormalities.<br>• Learn about Cell biochemistry and Physiology, including Transport across the cell Membrane, Water pH, Buffers, and Body Fluids.<br>• Describe the Biochemical Composition of the Cell, Cell Membrane, Transport across the Cell Membrane, ionization of Water, Weak Acids, Bases, pH, and pH Scale, Dissociation curve of weak Acids, Buffers and their mechanism of action, H-H equation, and its applications, as well as the Biochemical importance of Osmosis, Diffusion, Viscosity, and surface Tension.<br>• Develop comprehensive knowledge of cell biology, homeostasis, blood physiology, and water.<br>• Explore the biological aspects of the face, oral cavity structures, and tooth morphology in detail, and understand clinical conditions related to these structures for future application.<br>In addition, with regards to Junior Prosthodontics, students will be introduced to maxillary and mandibular landmarks critical for denture bearing areas.<br><br>For Junior Operative, students will be initiated into the principles of tooth cavity preparation and the classification of carious lesions. |

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| | transmission and muscle contraction. Relevant disorders like osteoporosis, osteomalacia, rickets and common joint diseases will also be covered. |
| **Teaching and Learning methodology** | **Interactive Lecture (IL):** The goal of interactive lecture is to engage the students' attention, through ways to interact with the content, the instructor, and their classmates. Accordingly, interactive lectures include segments of knowledge transfer combined with segments where students interact. One of the things that make the lecture interactive is the ability of the instructor to select the content of the lecture segments based on the students' needs. This demands a prior search for the baseline knowledge of the students at the start of the lecture. If students have difficulty answering a question, or an activity fails to develop the concept in most student groups, it's time to find a new and better way to deal with the material. LGIS clearly gives a better concept of the content and keeps students' attention captured throughout, as compared to yester years' didactic lectures.<br>**Small Group Discussion (SGD):** 'The purpose and technique of small group teaching is that it is learner-centered, with all students joining in free discussion on a particular topic. A typical 'small group' is around eight to 12 learners facilitated by a teacher. The steps of SGD are Forming, Storming, Norming & Performing. The teacher acts only as a facilitator. Students are allowed to use their books or other search material during the discussion. SGD is a good method to clear the concepts and develop communication and conflict solving skills in the students.<br>**Departmental teaching labs:** This is performance-based teaching & learning methodology where students learn handling and uses of laboratory equipment and models, safety rules and various clinical skills.<br>**Dissection/ Model Demonstration:** Where necessary teaching of gross Anatomy is aided by cadaver dissection / model demonstration.<br>**Problem based/ Task based/ Case based learning (PBL/TBL/CBL):** Students are presented with real life problems/tasks/cases. They are motivated through a standard process to seek answers to the given problem,task or case. This is a highly effective method to capture and maintain students' interest in patients' problems and their solution.<br>**Self-directed learning (SDL):** is the basic requirement for the successful implementation of the PBL curriculum. Students need ample time to research for their learning needs.<br>**Assignments and Presentations:** Both of methodologies are meant to make the students self-directed learners and good communicators by seeking knowledge from multiple sources and presenting it.<br>**Multidisciplinary Seminars (MDS):** in which groups of students are encouraged to independently present topics of general interest before a larger audience. This encourages students to read beyond their textbooks and learn to support their knowledge with research.<br>**Skill Lab Sessions:** students in groups will learn various behavioral and practical skills essential for a competent doctor. This will involve working with simulation aids, procedure demonstrations, role plays etc.<br>**Web- based learning/Hybrid/Blended learning:** Refers to the type of learning that uses the Internet as an instructional delivery tool to carry out various learning activities. It can take the form of (1) a pure online learning in which the curriculum and learning are implemented online without face-to-face meeting between the instructor and the students, or (2) a hybrid in which the instructor meets the student's half of the time online and half of the time in the classroom, depending on the needs and requirement of the curriculum. Discussion forums are being conducted via email, videoconferencing, and live lectures.<br>**Flipped classroom:** A flipped classroom is an educational strategy |

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| | where students are introduced to new content before class, freeing up in-class time for interactive, higher-order thinking activities, rather than traditional lectures or passive instruction. |
| **Assessment methodology:** | 1 Multiple Choice Questions (MCQs): Single best type<br>2. Short Essay Questions (SEQs)<br>3. Structured Viva:<br>4. Objective Structured Practical/Clinical Examination (OSPE /OSCE) |

| S.No | Learning Objectives<br>At the end of learning session, students will be able to | MIT | AT |
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| 1 | • Neurons (structure & classification)<br>• Central Nervous System<br>• Peripheral Nervous System<br>• Spinal Nerve<br>• Receptors (classification)<br>• Autonomic Nervous System<br>• Ganglia (sensory & autonomic) | IL X 3 | SEQs<br>MCQs |
| 2 | • Describe Neurulation<br>• Classify Brain vesicle and their derivatives<br>• Describe the development of Spinal cord.<br>• Discuss neural tube defects<br>• Describe the development of Brain (Rhombencephalon, Mesencephalon and Prosencephalon) along with clinical correlates | IL x 6 | SEQs<br>MCQs<br>OSPE |
| 3 | Describe the microscopic feature of Nervous System:<br>• Neuroglia<br>• Peripheral nerve<br>• Ganglia<br>• Blood-brain barrier<br>• Cerebrum<br>• Cerebellum<br>• Spinal cord | IL x 5 | SEQs<br>MCQs<br>OSPE |
| 4 | Describe<br>• Cranial fossae<br>• Meninges<br>• Dural venous sinuses | SGD x 3<br>IL x 1 | SEQs<br>MCQs<br>OSPE |
| 5 | • Describe the external and internal features of Spinal Cord along with explanation of ascending and descending tracts<br>• Discuss the cross sections at different levels<br>• Clinical aspects: UMNL, LMNL, hemiplegia, paraplegia, quadriplegia, hypotonia, hypertonia | SGD x 4<br>IL x 4 | SEQs<br>MCQs<br>OSPE |
| 6 | • Explain the gross and internal features of medulla, pons & mid brain<br>• Discuss the cross Sections of medulla, pons, mid brain | IL x 3<br>SGD x 4 | SEQs<br>MCQs<br>OSPE |

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| 7 | • Explain the cranial nerves (Nuclei & Intra cranial course) | SGD x 3 | SEQs<br>MCQs |
| 8 | • Discuss the External and Internal features of Cerebellum<br>• Cerebellar Peduncles<br>• Clinical aspects of cerebellum | SGD x1<br>IL x 2 | SEQs<br>MCQs<br>OSPE |
| 9 | • Describe the gross features of Diencephalon, Thalamus & Hypothalamus | SGD x 1<br>IL x 1 | SEQs<br>MCQs<br>OSPE |
| 10 | Identify the microscopic features of:<br>• Peripheral nerve<br>• Ganglia<br>• Spinal cord<br>• Cerebrum<br>• Cerebellum | Practical Demonstration x 4 | OSPE |
| **PHYSIOLOGY** | | | |
| 11 | • Define Hormone.<br>• Name the types of hormones.<br>• Explain the mechanism of action of hormone.<br>• | SGD<br>IL | SEQs<br>MCQs<br>VIVA |
| 12 | • Elaborate pituitary hormones | IL | SEQs<br>MCQs<br>VIVA |
| 13 | • Describe growth hormone | IL x 2 | SEQs<br>MCQs<br>VIVA |
| 14 | • Discuss thyroid hormones | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 15 | • Name the hormones of adrenal gland.<br>• Elaborate adrenocortical hormones | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 16 | • Name the hormones of Pancreas.<br>• Discuss the actions of Insulin.<br>• Describe the pathophysiology and clinical features of Diabetes mellitus. | IL x 2<br>SGD | SEQs<br>MCQs<br>VIVA |
| 17 | • Name the hormones of parathyroid gland<br>• Describe the actions of parathyroid hormone and calcitonin<br>• Describe the actions of vitamin D | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| **BIOCHEMISTRY** | | | |
| 18 | Introduction to vitamins<br>• Define and classify vitamins<br>• Explain general aspects of all vitamins | IL | SEQs<br>MCQs<br>VIVA |
| 19 | Explain vitamin A in details | IL | SEQs<br>MCQs<br>VIVA |
| 20 | Discuss the role of vitamin D in the body | IL | SEQs<br>MCQs<br>VIVA |
| 21 | Discuss the vitamin E and its role as antioxidant | IL | SEQs<br>MCQs<br>VIVA |

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| 22 | Explain different features of vitamin K and C | IL | SEQs<br>MCQs<br>VIVA |
| 23 | Outline characteristic of thiamine and riboflavin in the body | IL | SEQs<br>MCQs<br>VIVA |
| 24 | Discuss the role of Nicotinic acid and pantothenic acid in humans | SGD | SEQs<br>MCQs<br>VIVA |
| 25 | Describe the properties of Pyridoxine and Biotin | IL | SEQs<br>MCQs<br>VIVA |
| 26 | Discuss the role of Folic acid and Cobalamin in the body | SGD | SEQs<br>MCQs<br>VIVA |
| 27 | Introduction to enzymes<br>• Understand the concept of enzymes activity | IL | SEQs<br>MCQs<br>VIVA |
| 28 | • Discuss the chemistry and mechanism of action of enzymes | IL | SEQs<br>MCQs<br>VIVA |
| 29 | • Discuss the multiple mechanism to facilitate enzymes catalysis | IL | SEQs<br>MCQs<br>VIVA |
| 30 | • Discuss the factors effecting enzymes-I activity | IL | SEQs<br>MCQs<br>VIVA |
| 31 | • Discuss the factors effecting enzymes-II activity | IL | SEQs<br>MCQs<br>VIVA |
| 32 | • Discuss different properties of enzymes | SGD | SEQs<br>MCQs<br>VIVA |
| 33 | • Describe the specialized regulatory enzymes | IL | SEQs<br>MCQs<br>VIVA |
| 34 | • Discuss the clinically used enzymes | IL | SEQs<br>MCQs<br>VIVA |
| 35 | • Describe enzymes as disease markers and their use as drug | SGD | SEQs<br>MCQs<br>VIVA |
| **ORAL BIOLOGY** | | | |
| 36 | DENTINE<br>• Describe composition, formation and structure of dentine.<br>• Differentiate between primary, secondary and tertiary dentine.<br>• Discuss types of tertiary dentine.<br>• Explain the process of dentin genesis.<br>• Explain histology of different types of dentine.<br>• Enumerate and explain pulp cells. | IL<br>SGD<br>Practical | SEQs<br>MCQs<br>OSPE |

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| | • Describe vasculature and innervation of dentine pulp complex.<br>• Discuss different theories of dentine sensitivity.<br>• Explain age changes of enamel, dentine and pulp.<br>• Discuss pulp stones | demonstration | |
| 37 | PERIODONTIUM<br>• Define periodontium and its components.<br>• Define cementum and classify it.<br>• Explain cementum formation<br>• Discuss molecular factors regulating cement genesis<br>• Explain different types of cemento-enamel junctions.<br>• Describe the attachment of cementum onto dentin.<br>• Describe periodontal ligament (PDL).<br>• Discuss cells of PDL<br>• Explain the principal PDL fibers.<br>• Discuss gingival fiber bundles.<br>• Explain blood and nerve supply of periodontium<br>• Discuss adaptation of PDL to functional demands. | IL<br>SGD<br>Practical demonstration | SEQs<br>MCQs<br>OSPE |
| 38 | MORPHOLOGY OF PERMANENT MOLARS<br>• Describe the buccal and lingual/palatal aspect of maxillary permanent first molar.<br>• Describe the occlusal aspect of permanent maxillary first molar.<br>• Draw the occlusal aspect of permanent maxillary first molar.<br>• Enlist the roots and cusp names of the permanent maxillary first molar.<br>• Describe the buccal and lingual aspect of permanent mandibular first molar.<br>• Discuss the occlusal aspect of permanent mandibular first molar.<br>• Draw the occlusal aspect of permanent mandibular first molar.<br>• Differentiate between the maxillary and mandibular first molar.<br>• Discuss the occlusal aspect of permanent mandibular first molar.<br>• Draw the occlusal aspect of permanent mandibular first molar.<br>• Differentiate between the maxillary and mandibular first molar.<br>• Discuss the occlusal aspect of permanent maxillary second molar.<br>• Draw the occlusal aspect of permanent maxillary second molar.<br>• Discuss and draw the occlusal aspect of permanent mandibular second molar | | |
| **PRE-OPERATIVES** | | | |
| 39 | • Execute all the steps of class I cavity preparation on plaster model | IL<br>Practical demonstration | SEQs<br>MCQs<br>OSPE |
| 40 | • Identify walls and angles of class I cavity preparation | Practical demonstration | SEQs<br>MCQs<br>OSPE |
| 41 | • Execute all the steps of class I compound cavity preparation on plaster model | Practical demonstration | SEQs<br>MCQs<br>OSPE |
| 42 | • Identify walls and angles of class I compound cavity preparation | Practical demonstration | SEQs<br>MCQs<br>OSPE |
| **PRE-PROSTHODONTICS** | | | |
| 43 | • Mount the cast on plane line articulator | Practical demonstration | SEQs<br>MCQs |

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| | | | OSPE |
| 44 | • Arrangement of artificial teeth for a partial denture of Kennedys class I | SGD<br>Practical demonstration | SEQs<br>MCQs<br>OSPE |
| | **MODULE VI** | | |
| 45 | **EMBRYOLOGY**<br>Describe the formation of:<br>• Thyroid gland<br>• Parathyroid gland<br>• Pituitary gland | IL x 2 | SEQs<br>MCQs<br>OSPE |
| 46 | • Discuss Chromosomal abnormalities in detail<br>• Discuss Teratogens: Principles, types and teratogenic agents<br>• Explain the methods of prenatal diagnosis | IL x 3 | SEQs<br>MCQs<br>OSPE |
| 47 | **HISTOLOGY**<br>Describe the microscopic feature of Endocrine glands:<br>• Thyroid gland<br>• Parathyroid gland<br>• Pituitary gland | IL<br>Practical demonstration | MCQs<br>OSPE |
| 48 | • Discuss the gross appearance Cerebral cortex (lobes, Sulci & gyri)<br>• Describe the Functional cortical areas<br>• Describe the white mater.<br>Discuss internal capsule in terms of its location, parts & fibres | SGDs x 3<br>IL x 3 | SEQs<br>MCQs<br>OSPE |
| 49 | Describe basal nuclei (Location and classification) | IL | SEQs<br>MCQs<br>OSPE |
| 50 | Base of brain including circle of Willis | IL | SEQs<br>MCQs<br>OSPE |
| 51 | Explain The Ventricular system (Lateral, 3rd,4th& terminal ventricle)<br>Discuss the secretion, circulation, absorption and function of CSF | IL x 3<br>IL | SEQs<br>MCQs<br>OSPE |
| 52 | Discuss the components & location of limbic system | IL | SEQs<br>MCQs<br>OSPE |
| 53 | Describe the Blood Supply of brain & spinal cord | IL x 2 | SEQs<br>MCQs<br>OSPE |
| 54 | Describe the Gross Anatomy, blood supply & applied aspects of Thyroid gland | SGD | SEQs<br>MCQs<br>OSPE |
| 55 | Describe the gross features, blood supply and applied aspects of Parathyroid gland | SGD | SEQs<br>MCQs<br>OSPE |
| 56 | Identify the microscopic features of:<br>• Hypophysis<br>• Adrenal gland<br>• Thyroid gland<br>• Parathyroid gland | Practical demonstration | MCQs<br>OSPE |

| PHYSIOLOGY | | | |
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| 57 | • Elaborate general organization of nervous system | IL | SEQs<br>MCQs<br>VIVA |
| 58 | • Elaborate sensory receptors and neuronal circuits | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 59 | • Elaborate sensory receptors and neuronal circuits | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 60 | • Explain tactile sensations | IL | SEQs<br>MCQs<br>VIVA<br>OSPE |
| 61 | • Discuss pain | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 62 | • Elaborate motor functions of spinal cord | IL x 3 | SEQs<br>MCQs<br>VIVA |
| 63 | • Outline cortical and brain stem control of motor functions.<br>• Differentiate between upper & lower motor neuron lesions | IL x 2 | SEQs<br>MCQs<br>VIVA |
| 64 | • Discuss functions of cerebellum<br>• Discuss the role of basal ganglia in control of motor functions | IL x 4<br>SGD | SEQs<br>MCQs<br>VIVA |
| 65 | • Discuss sleep and its types<br>• Name the brain waves | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 66 | • Discuss autonomic nervous system | IL x 2 | SEQs<br>MCQs<br>VIVA |
| 67 | • Discuss functions of cerebrospinal fluid.<br>• Explain the blood brain barrier | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 68 | • Demonstrate the ability to accurately measure body temperature using various instruments. | Practical demonstration | OSPE |
| 69 | • Accurately interpret thyroid profile reports and understand the clinical significance of different thyroid hormone levels. | Practical demonstration | OSPE |
| 70 | • Identify and interpret abnormalities in Growth Hormone and Cortisol levels, with a focus on conditions like Cushing's syndrome. | Practical demonstration | OSPE |
| 71 | • Examine sensory system | Practical demonstration | OSPE |
| 72 | • Examine motor system | Practical demonstration | OSPE |
| 73 | • Demonstrate superficial and deep reflexes | Practical demonstration | OSPE |
| 74 | • Examine cranial nerves | Practical demonstration | OSPE |
| 75 | • Discuss chemical senses | IL | SEQs |

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| | | SGD<br>Practical demonstration | MCQs<br>OSPE |
| **BIOCHEMISTRY** | | | |
| 76 | Describe nucleotides | IL | SEQs<br>MCQs<br>VIVA |
| 77 | Difference between DNA and RNA | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 78 | Describe the derivatives of purine and pyridines | IL | SEQs<br>MCQs<br>VIVA |
| 79 | Describe Nucleic acid and their types | IL | SEQs<br>MCQs<br>VIVA |
| 80 | Describe the chemistry of purines and pyridines | IL | SEQs<br>MCQs<br>VIVA |
| 81 | Describe Nucleic acid and their types | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 82 | Describe the nucleotide analogues | IL | SEQs<br>MCQs<br>VIVA |
| | **PRACTICAL** | | |
| 83 | Biochemical examination of urine (normal and abnormal) | Practical demonstration | OSPE |
| 84 | DNA extraction of onion | Practical demonstration | OSPE |
| 85 | Estimation of serum CPK and LDH | Practical demonstration | OSPE |
| 86 | Estimation of serum ALT | Practical demonstration | OSPE |
| 87 | Estimation of serum amylase and ALP | Practical demonstration | OSPE |
| **ORAL BIOLOGY** | | | |
| 88 | PHYSIOLOGIC TOOTH MOVEMENT: ERUPTION & SHEDDING<br>• Discuss pre- eruptive tooth movements.<br>• Discuss eruptive tooth movements.<br>• Discuss post-eruptive tooth movements.<br>• Explain mechanism of eruptive tooth movement.<br>• Explain mechanism of post-eruptive tooth movement.<br>• Discuss shedding of teeth and its pattern.<br>• Discuss abnormal tooth movement.<br>• Explain orthodontics tooth movement | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 89 | REPAIR AND REGENERATION OF ORAL TISSUES<br>• Discuss wound healing in oral mucosa and its different phases.<br>• Discuss wound contraction and scarring.<br>• Explain the repair of enamel.<br>• Explain the repair of dentine- pulp complex. | | |

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| | • Explain the repair of periodontium.<br>• Explain repair following tooth extraction.<br>• Discuss new perspectives regarding periodontal and tooth regeneration | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 90 | DECIDUOUS DENTITION<br>• Enumerate the number of roots and canals of the all the deciduous and permanent teeth.<br>• Draw comparison between permanent and deciduous teeth<br>• individual deciduous teeth, Maxillary and Mandibular anterior and describe posterior teeth<br>• Discuss pulp cavities of deciduous teeth | IL<br>SGD<br>Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |
| 91 | PULP CAVITIES<br>• Explain pulp tissue and pulp cavity<br>• Discuss pulp cavities of the individual permanent teeth<br>• Describe pulp chamber anatomy and components | IL<br>SGD | SEQs<br>MCQs<br>VIVA |
| 92 | DEVELOPMENT OF THE TEETH AND ANOMALIES<br>• Explain development of teeth<br>• Explain resorption and exfoliation of deciduous teeth<br>• Discuss anomalies of teeth<br>a. Abnormal calcification and apposition<br>b. Abnormal shape of teeth<br>c. Abnormal numbers of teeth<br>d. Abnormal size of teeth | IL<br>SGD<br>Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |
| **PRE-OPERATIVES** | | | |
| 93 | Execute all the steps of class II cavity preparation on plaster model | IL<br>Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |
| 94 | Identify walls and angles of class II cavity preparation | SGD | SEQs<br>MCQs<br>VIVA<br>OSPE |
| 95 | Demonstrate understanding of walls and angles of class II cavity preparation | Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |
| **PRE-PROSTHODONTICS** | | | |
| 96 | Demonstrate formation of plaster molds in dental flask and perform dewaxing | SGD<br>Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |
| 97 | Demonstrate packing and curing of heat polymerization resins followed by finishing & polishing of partial denture | Practical demonstration | SEQs<br>MCQs<br>VIVA<br>OSPE |

**LEARNING RESOURCES (RECOMMENDED BOOKS)**

**ANATOMY**

1. Gray's Anatomy (3rd Edition)
2. Clinical Anatomy by Regions by Richard S. Snell (10th Edition)

3. Neuroanatomy by Richard S. Snell (8th Edition)

4. Clinically Oriented Anatomy by K.L. Moore
   Janqueira's
5. Basic Histology by Anthony L. Mescher
6 Di Fiore's Atlas of Histology with functional correlation (13th Edition)
7. General Anatomy by Laiq Hussain
8. Langman's Medical Embryology by T.W Sadler (14th edition)

**PHYSIOLOGY**

1. Textbook of Medical Physiology by Arthur C. Guyton, John E. Hall

   Human Physiology: from Cells to Systems by Sherwood Lauralee

   Ganong's Review of Medical Physiology.

2. Essentials of Medical Physiology by Mushtaq Ahmad Vol 1 & 2.

**BIOCHEMISTRY**

1. Harper's Illustrated Biochemistry; Robbert K. Murray, David A Bender, Peter J Kenneley.Victor W. Rodwell, P Anthony Weil.
2. Lippincott's Illustrated Review; Denise Ferrier &Richard A. Harvey

**Community Medicine**

1 . J.E . Park's Text Book by K. Park Public Health &
2. Community Medicine

**Behavioural Sciences**

1. Handbook of behavioural sciences by Mowadat H. Rana

* LATEST EDITIONS of all books

**Operative Dentistry:**

1. Atlas of operative dentistry by Evans J.R
2. Art and Science of Operative Dentistry

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