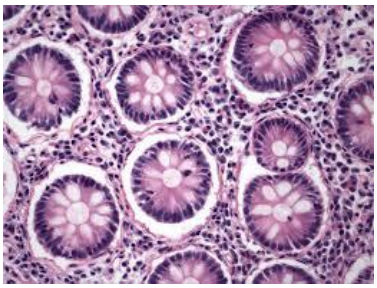
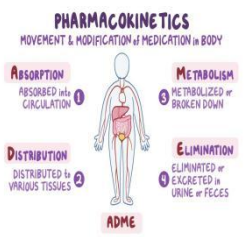
# RIHS MEDICAL & DENTAL COLLEGE






## MODULE IX: 20509
## MODULE X: 20510

## Session 2025-26

## 2nd YEAR BDS

## STUDY GUIDE

## BLOCK 5

## PLANNED &

## DESIGNED BY:

## DME, RIHS

## Placement in curriculum:

**Module code: 20209(Year 2, block code- 02, module code 09)**

**Module code: 20210 (Year 2, block code- 02, module code 10)**
**Pre-requisite: Block 4**

**Teaching faculty & Curriculum committee members**

| | Disciplines | Name of Faculty |
|---|---|---|
| 1. | **Principal** | **Prof. Dr. Saad Asad** |
| 2. | **Pharmacology** | **Prof. Dr. Seemi Gul** |
| 3. | **Pathology** | **Dr. Shafaq Khadija** |
| 4. | **Dental Materials** | **Dr. Sadaf Humayoun** |
| 5. | **Community Dentistry** | **Prof. Dr. Rubina Mumtaz** |
| 8. | **Junior Prosthetics** | **Dr. Amna Amjad** |
| 9. | **Junior Operatives** | **Dr. Hina Tariq** |
| 10. | **Behavioral Sciences** | **Ms. Nargis Munir** |
| 11. | **DME** | **Dr. Madiha Akhwand** |
| **Block duration** | | **12 Weeks** |
| **Block Coordinator** | | **Dr. Shafaq Khadija** |

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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 of making 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:** | This module has been designed to unfold the structural organization, functions, congenital anomalies and some of the disorders of the limbs & back. It explains the mechanism of neuromuscular transmission, its biochemical basis and the importance of $Ca^{++}$ in the body along with drugs acting at this level. It also highlights the main components of primary survey in a trauma patient along with identification of common fractures of long bones on clinical examination and radiographs of musculoskeletal system along with joint examination with teaching in Histology labs to enable the students to recognize different types of muscle, cartilage and bone tissue and skin, under microscope, will enable the student to<br>conceptualize the loco motor system as a whole. |

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| **Block Outcomes** | ● Discuss the infectious disease and drug treatment of infections of gastrointestinal system<br>● Discuss the diseases of hematological and cardiovascular system and their pathogenesis<br>● Discuss the diseases of immune system and their pathogenesis<br>● Describe different drugs used as Anticoagulants, Antiplatelet drugs, Antihyperlipidemic drugs, Anti-angina drugs, Antiarrhythmic agents, Antihypertensive drugs, Diuretic agents, Penicillin, Cephalosporins and drug treatment of CCF.<br>● Define and classify dental amalgam, prosthetic polymers & resins, dental polymers, Dental waxes as well as their manufacturing processes, properties, manipulation and toxicity.<br>● Describe the pattern of bonding to enamel and dentine, explain hybrid, smear layer, define the<br>● terms etchant, primer bonding agent and bond strength<br>● Describe the composition, classification, mechanism of action, indications and advantages<br>● disadvantages of Resin Based Composites<br>● Describe the different abrasive material and instruments used as Finishing & Polishing Materials<br>● in dentistry<br>● Describe the General principles of Oral Epidemiology<br>● Discuss the fundamental principle of Biostatistics |

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| **Teaching and Learning methodology** | **Large Group Interactive Sessions (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><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><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:** 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><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. |
| **Assessment methodology:** | **Multiple Choice Questions (MCQs): Single best type**<br>**SEQs: Short Essay Questions**<br>**Structured Viva:**<br>**Objective Structured Practical/Clinical Examination (OSPE /OSCE)** |

**MODULE 9:**

| LEARNING OBJECTIVES | MIT | AT | COGNITIVE DOMAIN |
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| **PHARMACOLOGY** | | | |
| **Gastritis & Peptic ulcer, *Helicobacter pylori,* and *Campylobacter jejuni***<br>• Classify drugs used in acid–peptic ulcer disease.<br>• Name proton pump inhibitors and describe their mode of action.<br>• Describe the adverse effects of proton pump inhibitors<br>• Name the H2 blocking drugs and explain their mode of action.<br>• Describe the adverse effects of Cimetidine.<br>• Describe the mode of action and adverse effects of antacid drugs.<br>• Describe the mode of action and adverse effects of sucralfate. | IL x 2 | MCQ<br>SEQ | C |
| **Pathological lesions of Esophagus & Prokinetic agents**<br>• Name the Prokinetic agents.<br>• Describe the therapeutic indications of Prokinetic agents.<br>• Explain the adverse effects and contraindications of different types of Prokinetic agents.<br>• Write the differentiating points of metoclopramide with domperidone. | IL | MCQ<br>SEQ | C |
| **Malabsorption, Food Poisoning, Diarrhea, Emesis & Constipation, Laboratory Examination Stool**<br>• Classify the drugs used in acute diarrhea.<br>• Name the anti-motility agents and mechanism of action of loperamide.<br>• Describe the adverse effects and contraindication of loperamide.<br>• Classify emetic and anti-emetic drugs.<br>• Describe the mode of action of metoclopramide and its adverse effects.<br>• Describe the therapeutic indications of domperidone and metoclopramide.<br>• Name the anti-emetics used in anti-cancer chemotherapy induce vomiting.<br>• Explain the terms, Laxatives /Purgative /Cathartics.<br>• Classify drugs used in constipation.<br>• Name the bulk-Forming Purgatives, stool Softeners, stimulant purgatives, osmotic purgatives, and serotonin 5-HT4 receptor agonists and their adverse effects.<br>• Identification of drug formulations for related drugs | IL x 3<br>SGD<br>Practical | MCQ<br>SEQ<br>Viva<br>OSPE | CP |
| **Inflammatory Bowel Diseases (IBS), irritable bowel syndrome (IBS), Ulcerative Colitis**<br>• Name the drugs used in inflammatory bowel disease (IBD) & irritable bowel syndrome (IBS) (chronic diarrhea).<br>• Describe the mode of action and adverse effects of amino salicylates.<br>• Describe the role of serotonin 5HT3 receptor antagonists in IBD & IBS.<br>• Identification of drug formulations for related drugs | IL<br>Practical | MCQ<br>SEQ<br>Viva<br>OSPE | CP |

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| **Amoebic Dysentery & Amoebic Liver Abscess**<br>• Name the drugs used in luminal & extra-luminal amebicides.<br>• Describe the mode of action of metronidazole.<br>• Describe the therapeutic indications, adverse effects, and contraindications of metronidazole.<br>• Enlist the Antimicrobial Spectrum of Metronidazole.<br>• Describe the mode of action and therapeutically used emetine.<br>• Describe the adverse effects of emetine.<br>• Describe the mode of action and therapeutically used of diloxanide furoate<br>• Describe the adverse effects of diloxanide furoate. | IL x 2 | MCQ<br>SEQ | C |
| **Roundworm Infections, Schistosomal Infections, Tapeworm Infections & Leishmaniasis**<br>• Classify antihelminthic drugs.<br>• Describe the MOA & pharmacologic effects of mebendazole.<br>• Describe the adverse effects, contraindications, and drug interactions of mebendazole.<br>• Describe the MOA, adverse effects, contraindications, and drug interactions of Niclosamide.<br>• Describe the MOA, adverse effects, contraindications, and drug interactions of praziquantel.<br>• Describe the MOA, adverse effects, contraindications, and drug interactions of ivermectin.<br>• Describe the MOA, adverse effects, and contraindications of pyrantel pamoate.<br>• Describe the MOA, adverse effects, and contraindications of piperazine.<br>• Describe the MOA, adverse effects, and contraindications of albendazole.<br>• Describe the mode of action, adverse effects, and contraindications of thiabendazole.<br>• Describe the mode of action, adverse effects, and contraindications of bithionol.<br>• Identification of drug formulations for related drugs | IL x 2<br>SGD<br>Practical | MCQ<br>SEQ<br>Viva<br>OSPE | CP |
| **Endocrine glands: Introduction to Endocrinology**<br>• Enumerate GnRH analogs<br>• Enumerate uses of GnRH analogs<br>• Describe adverse effects of GnRH analogs<br>• Enumerate uses of synthetic growth hormone preparation, octreotide, and synthetic ADH preparation | IL | MCQ<br>SEQ | C |
| **Hypothalamic Releasing Factors: Growth hormone, prolactin**<br>• Describe the pharmacological effects of growth hormones.<br>• Describe the mode of action of growth hormones.<br>• Describe the therapeutic indications of growth hormones.<br>• Explain the toxicity and contraindications of growth hormones.<br>• Define the drug mecasermin and its therapeutic uses.<br>• Please give the name of growth hormone antagonists and their clinical uses.<br>• Describe the mode of action, therapeutic uses, and adverse effects of prolactin.<br>• Describe the mechanism of action, therapeutic uses, and adverse effects of adrenocorticotropin | IL | MCQ<br>SEQ | C |

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| **Thyroid Gland: Disorders of thyroid gland function & its Pharmacology, Thyroid neoplasms**<br>• Classify anti-thyroid drugs<br>• Describe the mechanism of action of anti-thyroid drugs<br>• Describe the mechanism of action of iodides<br>• Explain the use of beta-blockers in the treatment of hyperthyroidism<br>• What is a thyroid storm? Describe its treatment<br>• Enumerate adverse effects of anti-thyroid drugs<br><br>**Identification of drug formulations for related drugs** | IL x 2<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CPA |
| **Adreno-corticosteroids And Mineralo-corticoids**<br>• Classify corticosteroids<br>• Describe the mechanism of action<br>• Describe in detail the anti-inflammatory and immunosuppressant actions of corticosteroids<br>• Enumerate and describe uses of corticosteroids<br>• Enumerate role of corticosteroids in transplant rejection, bronchial Asthma, rheumatoid arthritis<br>• Describe adverse effects of corticosteroids<br>• Explain why corticosteroids are tapered off and not abruptly stopped<br>• Describe the mechanism of action of mineralocorticoids<br>• Enumerate and describe actions of mineralocorticoids<br>• Enumerate and describe adverse effects of mineralocorticoids<br>• Enumerate corticosteroids antagonist<br>• Describe the mechanism of action and adverse effects of mineralocorticoids | IL x 2<br>SGD | MCQ<br>SEQ | CA |
| **Bone Mineral Homeostasis**<br>• Enumerate the different preparations of vitamin-D<br>• Describe actions of calcitriol<br>• Enumerate uses of calcitriol<br>• Enumerate drugs for hypercalcemia<br>• Describe the mechanism of action of Bisphosphonates.<br>• Enumerate uses and adverse effects of Bisphosphonates. | IL | MCQ<br>SEQ | C |
| **Diabetes mellitus**<br>• Classify insulin<br>• Describe the mechanism of action of insulin<br>• Give a brief description of different type of insulins<br>• Enumerate the advantages of different forms of insulin over others<br>• Classify oral antidiabetics<br>• Describe the mechanism of actions of different groups of oral antidiabetics<br>• Describe some contraindications of sulfonylureas<br>• Enumerate uses of oral hypoglycemic<br>• Enumerate adverse effects of different oral antidiabetic groups<br>• Identification of drug formulations for related drugs | IL x 2<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CPA |

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| **Male Sex Hormones**<br>• Enumerate different androgen preparations.<br>• Give mechanism of action of testosterone.<br>• Describe pharmacological actions of testosterone.<br>• Enumerate as well as describe uses of androgens.<br>• Enumerate adverse effects of androgens.<br>• Enumerate contraindications of androgens.<br>• Classify anti-androgen drugs.<br>• Give mechanism of action of finasteride, flutamide, and cyproterone acetate.<br>• Explain anabolic steroids.<br>• Enumerate anabolic steroids.<br>• Enumerate as well as describe anabolic steroids.<br>• Enumerate as well as describe adverse effects of anabolic steroids. | IL | MCQ<br>SEQ | C |
| **Treatment Of Male Infertility and Erectile Dysfunctions**<br>• Enumerate drugs used in the treatment of male infertility.<br>• Enumerate drugs used in the treatment of erectile dysfunction.<br>• Describe the mechanism of action of these drugs.<br>• Enumerate and describe the adverse effects of these drugs. | IL | MCQ<br>SEQ | C |
| **Female Sex Hormones, Contraceptives**<br>• Enumerate different estrogen and progestin preparations.<br>• Describe pharmacological actions of estrogen and progestin.<br>• Enumerate adverse effects of estrogen and progestin.<br>• Enumerate contraindications of estrogen and progestin.<br>• Describe mechanism of action of tamoxifen raloxifene and mifepristone.<br>• Enumerate their uses and adverse effects of tamoxifen, raloxifene, and mifepristone.<br>• Describe the mechanism of action of danazol, its uses, and adverse effects.<br>• Enumerate oral contraceptives.<br>• Explain what is meant by biphasic and triphasic combination pills.<br>• Explain what is meant by first, second, and third-generation combination pills.<br>• Explain the advantage of 3rd generation oral contraceptives.<br>• Explain mini-pill.<br>• Describe the advantages and disadvantages of the progestin-only pill.<br>• Explain post-coital contraception.<br>• Enumerate adverse effects of oral contraceptives.<br>• Enumerate contraindications of oral contraceptives. | IL x 2 | MCQ<br>SEQ | C |
| **Female Infertility**<br>• Describe the mechanism of action of clomiphene.<br>• Enumerate uses of clomiphene.<br>• Enumerate adverse effects of clomiphene.<br>• Enumerate drugs used in orgasm disorder and describe their mechanism of action and adverse effects.<br>• Identification of drug formulations for related drugs. | IL<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CP |

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| **Drugs Affecting Uterine Motility**<br>• Classify uterine stimulants.<br>• Describe the actions of oxytocin.<br>• Describe the uses of oxytocin.<br>• Enumerate adverse effects of oxytocin.<br>• Enumerate contraindications of oxytocin.<br>• Classify tocolytics.<br>• Give a brief description of tocolytics. | IL | MCQ<br>SEQ | C |
| **Skeletal Muscle Relaxant**<br>• Explain the centrally and peripherally acting skeletal muscle relaxants.<br>• Give the name of drugs used in centrally acting skeletal muscle relaxants.<br>• Describe the mechanism of action and adverse effects of baclofen.<br>• Describe the mechanism of action and adverse effects of gabapentin.<br>• Give the Rationale of use benzodiazepine in skeletal muscle spasms.<br>• Describe the mechanism of action and adverse effects of tizanidine.<br>• Give the name of drugs used in peripherally acting skeletal muscle relaxants.<br>• Explain the comparative features of central & peripheral muscle relaxants.<br>• Describe the mode of action and adverse effects of non-depolarizing muscle relaxants.<br>• Explain the pharmacological effects of different types of non-depolarizing muscle relaxants.<br>• Describe the mode of action and adverse effects of depolarizing muscle relaxants.<br>• Describe the therapeutic indication of succinylcholine.<br>• Describe the MOA of dantrolene and its therapeutic indications. | IL x 2<br>SGD | MCQ<br>SEQ | C |
| **Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), Migraine and Other Types of Headaches**<br>• Classify non-steroidal anti-inflammatory drugs (NSAIDs).<br>• Describe the mode of action and therapeutic indications of aspirin.<br>• Describe the different doses of aspirin and their significance.<br>• Describe the adverse reaction and contraindications of aspirin.<br>• Explain the MOA and therapeutic role of celecoxib in different inflammatory disorders.<br>• Explain the rationale use of Indomethacin in different inflammatory disorders.<br>• Explain the rationale use of Mefenamic acid and ibuprofen in different inflammatory disorders.<br>• Explain the MOA and adverse effects of paracetamol.<br>• Describe the toxicity of paracetamol and its management.<br>• Describe the therapeutic indications of paracetamol.<br>• Describe the treatment of dengue fever.<br>• Give the names of drugs used in migraine headaches.<br>• Describe the treatment strategy in the acute attack of migraine.<br>• Give the Rationale use of NSAIDs in the acute attack of migraine headache.<br>• Give the Rationale use of triptans in migraine headaches.<br>• Describe the adverse effects and contraindication of triptans.<br>• Give the rationale use of ergot alkaloids in migraine headaches.<br>• Enlist and describe the drugs used in the prophylaxis to migraine headache.<br>• Identification of drug formulations for related drugs | IL x 3<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CP |

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| **Ergot Alkaloids, Nitric Oxide (NO) & Eicosanoids (Prostaglandins, Etc.)**<br>• Classify ergot alkaloids<br>• Describe the mode of action and therapeutic uses of ergotamine.<br>• Describe the adverse effects and contraindications of ergotamine.<br>• Describe the therapeutic indications of bromocriptine.<br>• Enlist the adverse effects and contraindication of bromocriptine.<br>• Describe the different types and synthesis of Nitric Oxide (NO).<br>• Describe the mode of action and pharmacological effects of Nitric Oxide (NO).<br>• Give the name of Nitric Oxide Inhibitors and their pharmacological effects.<br>• Classify prostaglandins<br>• Describe the mode of action and therapeutic indications of prostaglandins.<br>• Explain the adverse effects and contraindications of prostaglandins. | IL x 2 | MCQ<br>SEQ | C |
| **Serotonin (5-Ht) & Vasoactive Peptides**<br>• Describe serotonin (5-HT)<br>& give the name of its agonists & antagonists<br>• Describe the mode of action and therapeutic indications of serotonin and their antagonists.<br>• Describe serotonin syndromes and its management.<br>• Give the name of different types of vasoactive peptides.<br>• Describe the rennin-angiotensinogen-converting enzyme system and its pharmacological effects.<br>• Describe the pharmacological effects of other vasoactive peptides. | IL | MCQ<br>SEQ | C |
| **Histamine & Histamine H-1 Blockers, Anti-Tussive, Expectorants, Mucolytics**<br>• Classify histamine blockers.<br>• Describe their mechanism of action.<br>• Enumerate their uses and clinical indications.<br>• Enumerate adverse effects.<br>• Enumerate and classify antitussives<br>• Enumerate and classify mucolytic<br>• Give a brief description of cough suppressants<br>• Describe expectorants their mechanism of action along with uses and adverse effects<br>• Explain mucolytic their mechanism of action along with uses and adverse effect<br>• Identification of drug formulations for related drugs. | IL x 2<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CP |
| **PATHOLOGY** | | | |
| **Immunology**<br>• Enumerate and describe the pathology of different types of hypersensitivity reactions<br>• Enlist the Autoimmune diseases.<br>• Describe the immune Mechanism involved in graft rejection<br>• Describe the Role of HLA Typing<br>• Describe the types and pathogenic mechanism of<br>• immunodeficiency syndromes.<br>• Describe different types of vaccines and their mechanism of action | IL<br>SGD | MCQ<br>SEQ<br>Viva<br>OSPE | C |

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| **SYSTEMIC MICROBIOLOGY**<br>**Oro dental infections**<br>• Enlist the Organisms related to dental caries and periodontal infections<br>• Describe the Pathogenesis, brief clinical features, prevention of Orofacial, Odontogenic and periodontal infections (Dental caries, Ludwig angina, actinomycosis, oral ulcers, herpetic labialis and gingivitis, infective endocarditis, dental abscess, cavernous sinus syndrome<br>• Diagnose of Orofacial, Odontogenic and periodontal infections based on case scenarios | IL<br>SGD | MCQ<br>SEQ<br>Viva<br>OSPE | C |
| **Gastrointestinal system**<br>• Describe the Pathogenesis, Brief clinical features, prevention and diagnosis of Hepatitis & liver abscess<br>• Describe the Pathogenesis, Brief clinical features, prevention and diagnosis of Diarrhea and dysentery (Bacteria, Protozoa, viruses causing diarrhea and dysentery. Nematodes causing GIT disturbance)<br>• Describe the Pathogenesis, Brief clinical features, prevention and diagnosis of Typhoid<br>• Describe the Pathogenesis, Brief clinical features, prevention and diagnosis of Gastritis (Helicobacter)<br>• Interpret routine examination report of stool<br>• Diagnose the cases of Oro dental infections based on case scenarios<br>• Interpret the Diagnostic test for hepatitis | IL<br>SGD | MCQ<br>SEQ<br>Viva<br>OSPE | CP |
| **COMMUNITY DENTISTRY** | | | |
| **General principles of epidemiology and distinguish measures of morbidity and mortality**<br>**Fundamentals of epidemiology**<br>• Definition of epidemiology<br>• Describe purpose & use of epidemiology<br>• Describe the 5Ws of epidemiology<br>• Classify categories of epidemiology<br>• Summarize levels of disease occurrence<br>**Measures of Morbidity**<br>• Interpret measure of Prevalence,<br>• interpret measure of Incidence<br>• Review and argue relationship between prevalence and incidence<br>**Measures of Mortality**<br>• Interpret measures of MMR and IMR,<br>• Interpret measures of crude death rate, age specific death rate, Life expectancy | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |

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| **Research study designs for descriptive and analytical studies.**<br>**Research Study Designs**<br>• Discuss the classification of epidemiological studies<br>• Identify the properties of a good research design<br>• Demonstrate writing of a research proposal and presenting the synopsis<br>**Descriptive studies**<br>• Review and discuss case reports and case series<br>• Review and discuss Ecological studies<br>• Review and discuss Cross sectional study (time reference, characteristics, uses, measure of association, adv & disadvantages)<br>**Case Control Study**<br>• Review and summarize characteristics of case control study<br>• Differentiate the selection of cases and controls<br>• Interpret the measure of association in case controls studies<br>**Cohort study**<br>• Review and summarize characteristics of cohort study.<br>• Differentiate the selection of subjects<br>• interpret the measure of association<br>• compare the advantages and disadvantage<br>• Review the use of cohort study<br>**Clinical and Community Trials**<br>• Review and summarize characteristics of clinical trials<br>• Distinguish between clinical and community trials<br>• Identify criteria for selection of subjects and apply randomization and blinding component<br>• Describe the basic designs and phases of clinical trials<br>• Implement ethical requirements in trials | IL<br>SGD<br>SDL | MCQ<br>SEQ<br>OSPE | CPA |
| **Sampling**<br>• Demonstrate key concepts of sampling techniques<br>• Demonstrate and apply methods of Probability sampling<br>• Demonstrate and apply methods of non-probability sampling<br><br>**Confounders and Bias in Epidemiology**<br>• Identify and discuss role of Bias and confounders in research<br>• classify types of bias in research<br>• Distinguish and solve biases and confounders in research outcomes | IL<br>SGD<br>SDL | MCQ<br>SEQ<br>OSPE | C |
| **DENTAL MATERIALS** | | | |

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| **Dental Amalgam**<br>• Define dental amalgam<br>• Classify dental amalgam<br>• Describe dental amalgam<br>• Describe the manufacturing process of dental amalgam<br>• Describe the properties, manipulation and toxicity of dental amalgam<br>• Enlist the advantages, shortcomings and clinical applications of dental amalgam<br>**Classification**<br>• Classify Dental Amalgam alloys on basis of copper content, zinc content, shape of the alloy particle, number of alloy metals and size of alloy powder<br>• Differentiate between amalgamation and trituration<br>**Alloy particles and microstructure**<br>• Describe the Manufacturing and heat treatment of lathe cut and spherical alloys<br>• Describe the Microstructure and Amalgamation reaction of low copper, high copper admixed and singe composition<br>• alloys with mercury<br>**Creep and tarnish**<br>• Define creep, tarnish and corrosion<br>**Clinical handling and manipulation**<br>• Discuss clinical handling of dental amalgam<br>• Discuss Properties of Dental Amalgam<br>• Describe the Manipulation of Dental Amalgam, selection of materials, proportioning and dispensing, trituration, mulling, condensation, shaping and finishing<br>• Discuss zinc free alloys<br>**Amalgam drawbacks**<br>• Discuss Amalgam controversy<br>• Discuss Mercury Toxicity<br>**Laboratory skills** | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |

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| **Polymers and Resins**<br>**Classification and composition**<br>• Classify denture base acrylic resins<br>• Describe the materials available for denture base polymers<br>• Describe the composition of acrylic denture base materials<br>**Manipulation**<br>• Describe the manipulation/ mixing of heat cure acrylic resin.<br>**Stages**<br>• Identify the transitional stages which occur after mixing heat cured acrylic resins<br>• Differentiate between doughing time and working time<br>**Curing cycles:**<br>• Describe the curing cycles for heat cured acrylic resin<br>• Describe the possible reasons for warpage and its solution<br>**Drawbacks, crazing and porosities:**<br>• Describe the reasons for crazing in acrylic resin<br>• Describe the different types of porosities which may occur in set acrylic and suggest their formation<br>• Differentiate between injection molding and dough molding/ compression molding technique<br>**Artificial teeth**:<br>• Describe the uses of different types of acrylic resin<br>• Enlist and explain the properties of acrylic resin<br>• Enlist the advantages of modified acrylic resins<br>**Disinfection:**<br>• Describe the methods of disinfection of acrylic prosthesis<br>**Laboratory skills**<br>• Demonstrate the manipulation of acrylic resin | IL<br>SGD | MCQ<br>SEQ<br>Viva<br>OSPE | C |
| **Dental waxes**<br>• Classify dental waxes<br>• Discuss the composition, properties and clinical applications of dental waxes<br>**Laboratory skills:**<br>Manipulation of modelling wax | IL<br>SGD<br>Practical | MCQ<br>SEQ | C |
| **PRE-CLINICALS** | | | |

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| • Manipulation of auto-polymerizing resins<br>• Demonstration on composite restoration<br>- Define composites<br>- Explain composition of composites<br>- Describe Indications of composites<br>- Demonstrate manipulation of light cured composites<br>• Manipulation of amalgam<br>- Explain composition of amalgam, dispensing, trituration, condensation, finishing and polishing<br>• Discuss Atraumatic Restorative Treatment (ART)<br>• Instrumentation for scaling<br>• (Handgrip and strokes)<br>• Pit and fissure sealing<br>- Define pits and fissure sealants<br>- Enlist indications<br>- Demonstrate pits and fissures application on typodont<br>• Fluoride application<br>- Enlist different modalities of fluoride<br>**Lab Skills**<br>• Maxillary & Mandibular Landmarks<br>• Manipulation of modeling wax<br>• Class II cavity preparation | SGD<br>Practical | | |

**MODULE 10:**

| **LEARNING OBJECTIVES** | **MIT** | **AT** | **COGNITIVE DOMAIN** |
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| **PHARMACOLOGY** | | | |

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| **Congestive Cardiac Failure, Acute Heart Failure**<br>• Classify the drugs used in congestive cardiac failure.<br>• Describe the Rationale of use ACE inhibiting drugs in CCF.<br>• Justify the therapeutic uses of diuretic, β-blockers, and vasodilators in CCF.<br>• Enlist the diuretics which used in CCF.<br>• Describe the mode of action of cardiac glycosides.<br>• Explain the mechanical and electrical effects of digoxin.<br>• Describe the therapeutic uses of digoxin.<br>• Describe the digoxin toxicity and its management.<br>• Describe the management of acute heart failure.<br>• Describe the other positive inotropic drugs and their pharmacology.<br>• Describe the role of β-blocker in acute heart failure.<br>• To study the effect of drugs on a frog's heart | IL x 3<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CP |
| **Hypertension**<br>• Classify drugs used in hypertension.<br>• Give examples of β & α blocking drugs.<br>• Describe the mode of action of β & α blocking drugs.<br>• Describe the therapeutic indications of β & α blocking drugs.<br>• Discuss the adverse effects and contraindications of β & α blocking drugs.<br>• Name ACE inhibitors and Angiotensin-II receptor blocking (ARBs) drugs.<br>• Describe the mode of action of ACE inhibitors and Angiotensin-II receptor blocking (ARBs) drugs.<br>• Describe the therapeutic indications of ACE inhibitors and Angiotensin-II receptor blocking (ARBs) drugs.<br>• Explain the adverse effects and contraindications of ACE inhibitors and Angiotensin-II receptor blocking (ARBs) drugs.<br>• Classify Calcium Channel Blockers (CCBs).<br>• Describe the mode of action of Calcium Channel Blockers (CCBs).<br>• Describe the therapeutic indications of Calcium Channel Blockers (CCBs).<br>• Discuss the adverse effects and contraindications of Calcium Channel Blockers (CCBs).<br>• Name the different types of vasodilators used for hypertension.<br>• Explain the adverse effects and contraindications of arterial and venous vasodilators used hypertension.<br>• Classify diuretic used in hypertension disease.<br>• Describe the mode of action and adverse effects of different types of diuretics. | IL<br>SGD | MCQ<br>SEQ<br>OSPE<br>Viva | CP |

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| **Angina Pectoris**<br>• Classify the anti-anginal drugs.<br>• Describe the types of nitrates and their mode of action.<br>• Explain MONDAY DISEASE and enlist the adverse effects of nitrites.<br>• Describe the Rationale of β-blockers in angina-pectoris.<br>• Name the new drugs used in angina pectoris and give their role.<br>• Identification of drug formulations for related drugs | IL x 2<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CP |
| **Cardiac Arrhythmias**<br>• Classify anti-arrhythmic drugs.<br>• Give the names of Na channel blocking drugs and their mode of action.<br>• Describe the term "cinchonism" and enlist the adverse effects of Quinidine.<br>• Describe the adverse effects of lidocaine, phenytoin, and flecainide.<br>• Name the class-II, III, IV, and V anti-arrhythmic drugs.<br>• Describe the role of β-blockers in the management of cardiac arrhythmias.<br>• Describe the contraindications of β-blockers in cardiac arrhythmia.<br>• Explain the mode of action, clinical indication, and adverse effects of amiodarone, a class-III drug.<br>• Describe the role of Calcium Channel Blockers in the management of cardiac arrhythmias.<br>• Explain the mode of action and uses of class-V anti-arrhythmic drugs in the management of arrhythmias.<br>• Identification of drug formulations for related drugs. | IL x 2<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE<br>Viva | CPA |

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| **Diuretics**<br>• Classify diuretics.<br>• Explain the mode of action and therapeutic indications of thiazide diuretics.<br>• Describe the adverse effects and contraindications of thiazide diuretics.<br>• Describe the mode of action, therapeutic indications, and adverse effects of acetazolamide diuretics.<br>• Explain the mode of action and therapeutic indications of loop diuretics.<br>• Describe the adverse effects and contraindications of loop diuretics.<br>• Describe the mode of action, therapeutic indications, and adverse effects of potassium-sparing diuretics and osmotic diuretics. | IL x 2<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Parental Anticoagulant**<br>• Classify Anticoagulants<br>• Describe the mechanism of Action of Unfractionated Heparins & Low molecular weight heparins (LMWH)<br>• Tabulate differences between HMWH & LMWH<br>• Describe the uses of anti-coagulants<br>• Enumerate adverse effects of heparin<br>• Enlist contraindications of heparin<br>• Describe parenteral Direct Thrombin Inhibitors<br>• Describe the mechanism of action of Warfarin<br>• Describe the adverse effects of Warfarin<br>• Explain the contraindications of Warfarin in pregnancy<br>• Describe drug interactions of Warfarin<br>• Tabulate differences between heparin and Warfarin<br>• Enlist advantages and disadvantages of newer oral anticoagulants | IL x 2<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Thrombolytic/Fibrinolytic agents**<br>• Enumerate Fibrinolytics<br>• Describe the mechanism of action of fibrinolytic<br>• Tabulate differences between Streptokinase & recombinant tissue plasminogen activators<br>• Enlist uses of fibrinolytic<br>• Enlist adverse effects of fibrinolytic | IL | MCQ<br>SEQ | C |
| **Antiplatelet agents**<br>• Classify Antiplatelet Drugs<br>• Describe the antiplatelet mechanism of Aspirin<br>• Explain why Aspirin is helpful in low dose as an antiplatelet drug<br>• Describe the mechanism of action of ADP receptor blockers<br>• Enlist adverse effects of ADP receptor blockers<br>• Describe differences between Clopidogrel and Ticlopidine<br>• Describe the mechanism of action of Platelet GpIIb/IIIa antagonists<br>• Enlist adverse effects of Platelet GpIIb/IIIa antagonists<br>• Describe the mechanism of action of phosphodiesterase enzyme inhibitors used as antiplatelet drugs<br>• Describe the uses of Antiplatelet Drugs<br>• Enlist the adverse effects of antiplatelet drugs | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |

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| **Hemostatic drugs**<br>• Classify drugs used in the treatment of bleeding disorders<br>• Describe the mechanism of action of Vitamin K<br>• Describe the mechanism of action of Fibrinolytic Inhibitors<br>• Describe the mechanism of action of Serine Protease Inhibitors<br>• Enlist adverse effects of major drugs used for the treatment of bleeding disorders | IL | MCQ<br>SEQ | C |
| **Anti-Anemic Drugs**<br>• Classify anti-anemic drugs<br>• Enlist the different oral & parenteral iron preparations<br>• Enlist uses of iron/Enlist causes of iron-deficiency anemia<br>• Enlist adverse effects of iron preparations<br>• Describe features of acute iron toxicity<br>• Describe the treatment of acute iron toxicity<br>• Enlist the Vitamin B12 preparations<br>• Enlist therapeutic uses of vitamin B12<br>• Explain why folic acid alone is contraindicated in the treatment of pernicious anemia<br>• Enlist uses of folic acid<br>• Hematopoietic Growth Factors<br>• Explain the term 'Hematopoietic Growth Factor.'<br>• Classify hematopoietic growth factors<br>• Describe the mechanism of action of the three major hemopoietin growth factors<br>• Enlist uses of different hematopoietic growth factors<br>• Enlist adverse effects of different hematopoietic growth factors | IL x 2<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Agents Used in Dyslipidemia**<br>• Describe the different types of Dyslipidemia<br>• Classify drugs used in Dyslipidemia<br>• Describe the mechanism of action, clinical uses and adverse effects of Statins<br>• Describe the mechanism of action, clinical uses and adverse effects of Fibrates<br>• Describe the mechanism of action of bile acid-binding resins<br>• Describe clinical uses and adverse effects of bile acid-binding resins<br>• Describe interactions of Bile acid-binding resins<br>• Describe the mechanism of action, clinical uses and adverse effects of Niacin<br>• Describe the mechanism of action of sterol absorption inhibitors<br>• Enlist uses of sterol absorption inhibitors<br>• Enlist drugs used for the different types of hyperlipidemias<br>• Enlist combination therapies for the treatment of hyperlipidemias | IL x 2<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Antimalarial drugs**<br>• Know the life cycle of the major forms of the malaria parasite<br>• Classify antimalarial drugs<br>• Explain Schizonticide, Gametocide, Sporontocide, Radical cure, Suppressive Prophylaxis, Terminal Prophylaxis and Causal Prophylaxis<br>• Describe the mechanism of action, spectrum, clinical uses and adverse effects and contraindications of Chloroquine<br>• Describe the mechanism of action, clinical uses and adverse effects of Artemisinin<br>• Describe spectrum, therapeutic indications, adverse effects of Primaquine<br>• Describe the role of the folate synthesis inhibitors used in Malaria<br>• Describe the mode of action, clinical uses, adverse effects and contraindications of quinine and quinidine<br>• Enlist drugs used for the treatment of uncomplicated, severe Chloroquine sensitive and Chloroquine-resistant acute Malaria | IL x 2<br>SGD | MCQ<br>SEQ | C |

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| **Drugs used for different types of leukemia**<br>• Classify dugs used in leukemia<br>• Describe different regimens used in the treatment of leukemia<br>• Describe the mechanism of action of drugs used in leukemia<br>• Enumerate adverse effects of different drugs used in leukemia | IL | MCQ SEQ | C |
| **Drug treatment of anaphylactic shock & septic shock**<br>• Define anaphylactic and septic shock<br>• Enumerate signs and symptoms of anaphylactic and septic shock<br>• Describe the treatment of anaphylactic and septic shock<br>• Enumerate drugs used in the treatment of anaphylactic and septic shock<br>• Enumerate adverse effects of drugs used in anaphylactic and septic shock | IL | MCQ SEQ | C |
| **Drug treatment of hypovolemic shock and cardiogenic shock**<br>• Define hypovolemic and cardiogenic shock<br>• Enumerate signs and symptoms of hypovolemic and cardiogenic shock<br>• Describe the treatment of hypovolemic and cardiogenic shock<br>• Enumerate drugs used in the treatment of hypovolemic and cardiogenic shock<br>• Enumerate adverse effects of drugs used in hypovolemic and cardiogenic shock | IL | MCQ SEQ | C |
| **Clinical Pharmacology Seminar on Deep Vein Thrombosis, Dyslipidemia, & Iron Deficiency & Megaloblastic Anemia**<br>• To revise drugs used in thromboembolism, dyslipidemias, and anemias from clinical problems (Case scenarios) by self-study and group discussions. | Practical | OSPE | CPA |
| **Clinical Pharmacology Seminar on Treatment & prophylaxis of Malaria, & Treatment of Leukemia & Hodgkin's Disease**<br>• To revise the life-cycle of malarial parasites in view of drugs used in the treatment and prophylaxis of Malaria<br>• To learn used in the treatment and prophylaxis of the drugs in various types of Malaria<br>• To review the management of Hodgkin's disease and various types of leukemia.<br>• To revise the pharmacology of drugs used to treat Hodgkin's disease and various types of leukemia. | Practical | OSPE | CPA |
| **Clinical Pharmacology Seminar on Treatment of Different Types of Shock**<br>• To understand the pathophysiology of various types of shock and learn their management | Practical | OSPE | CPA |
| **PATHOLOGY** | | | |

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| **Hemodynamics**<br>• Define Edema<br>• Enlist causes of Edema<br>• Correlate examples of Edema formation with pathogenesis<br>• Define congestion and hyperemia<br>• Differentiate between acute and chronic tissue congestion<br>• Tabulate differences between congestion and hyperemia with examples<br>• Define thrombosis<br>• Describe components of Virchow's Triade and their role in pathogenesis of thrombosis<br>• Tabulate differences between antemortem and postmortem clot<br>• Tabulate differences between arterial and venous thrombi<br>• Define embolism<br>• Enlist types of emboli<br>• Describe pathogenesis of each type<br>• Define infarction<br>• Enlist types of infarctions<br>• Describe the gross and microscopic appearance of different types of infarctions<br>• Correlate the type of infarction with the type of blood supply<br>• Define shock<br>• Enlist types of shock<br>• Enlist and highlight important features of stages of shock<br>• Describe the pathogenesis of shock<br>• Enlist the important target organs and their lesions | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |

| HEMATOPOIETIC SYSTEM<br><br>**Anemias**<br><br>• Enlist causes of iron deficiency anemias.<br><br>• Describe pathogenesis of iron deficiency anemia<br><br>• Formulate a lab diagnostic plan for iron deficiency anemia<br><br>• Enlist iron preparations, their clinical uses and adverse effects.<br><br>• Enumerate the methods for prevention of childhood and pregnancy related anemias<br>• Enlist the underlying genetic defect in hereditary spherocytosis<br>• Describe RBC morphology in hereditary spherocytosis<br>• Enlist lab tests for its diagnosis<br>• Elucidate biochemical defects and enlist other variables that influence red cell sickling in sickle cell anemia<br>• Correlate effects of sickling to clinical features and complications<br>• Describe peripheral smear in sickle cell anemia<br>• Enlist lab investigations for its diagnosis<br><br>**Megaloblastic anemia**<br>• Define megaloblastic anemia Enlist its causes<br>• Describe pathogenesis of megaloblastic anemia<br>• Describe peripheral smear and bone morrow morphology in megaloblastic anemia<br>• Formulate a lab diagnostic plan for megaloblastic anemia<br>• Compare and contrast clinical features of vitamin B12 and folate deficiency<br>• Define Hemolytic anemias<br><br>• Classify hemolytic anemias into Hereditary Type (sickle cell anemia, G6PD, Thalassemia, Hereditary spherocytosis)<br><br>• Acquired Type (Autoimmune hemolytic anemia, PNH<br><br>**Leukemias**<br><br>• Classify white blood cell disorders (leukemia) and compare pathologic features of each category<br>**Myeloid Neoplasm I:**<br>1. Acute Myeloid Leukemia<br>2. Myelodysplastic syndrome<br>**Myeloid Neoplasm II:**<br>1. Myeloproliferative disorders<br>a. CML<br>b. PV<br>c. MYELOFIBROSIS<br>d. ET | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
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| **Bleeding Disorder**<br>Define thrombocytopenia and distinguish between quantitative and qualitative platelet disorders along with other bleeding disorders like vascular diseases. | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
| **Acquired and hereditary coagulation disorders**<br>Describe the Acquired and hereditary coagulation disorders (Hemophilia, Von Willebrand disease) in relation to etiology, pathogenesis, clinical features and lab findings | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
| **CARDIOVASCULAR SYSTEM**<br>• Enlist the viruses and bacteria causing septicemia<br>• Enlist the different hemorrhagic viruses<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Dengue<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Malaria<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Leishmania<br>• Interpret the diagnostic tests of Malaria<br>• Interpret the diagnostic tests of Leishmaniasis<br>• Interpret the diagnostic tests of Dengue | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
| **BLOOD BORNE INFECTIONS**<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Bacterial endocarditis<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of prosthetic device infection,<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Rheumatic fever<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of toxic shock syndrome and Kawasaki syndrome<br>• Describe the pathogenesis, clinical sign/symptoms, diagnosis and prevention of Hepatitis B &C<br>**PRACTICALS:**<br>• Interpret the diagnostic tests of Rheumatic fever<br>• Interpret the diagnostic tests of hepatitis B and C | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
| **COMMUNITY DENTISTRY** | | | |

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| **Identify variable types, demonstrate methods of data Presentation and summarize descriptive statistics.**<br><br>**Introduction to biostatistics & presentation of data**<br>• Identify Variable types<br>• Describe Data types, Collection of data<br>• Classification of data<br>• Demonstrate presentation of data in form of tables, Graphs, Charts and Maps | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Descriptive statistics**<br>• Describe Parameters and statistics<br>• Interpret Measures of central tendency<br>• Interpret Measures of dispersion<br>**Frequency distribution**<br>• Describe Types of distributions<br>• Describe and interpret Normal distribution<br>• Describe and interpret Standard deviation and Standard error | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Hypothesis testing**<br>• Apply and interpret Hypothesis testing<br>• Distinguish and interpret Role of chance, P value and confidence level<br>**Confidence interval**<br>• Demonstrate and interpret Confidence interval<br>• Describe and differentiate Types of error and power of test | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Differentiate and justify tests of significance.**<br><br>Tests of statistical significance<br>• Describe Types of tests<br>• Justify when to use which test<br>• Classify and differentiate Parametric and non-parametric tests<br>• Equivalents tests of both categories<br><br>Interpretation of tests of significance<br>Interpretation of test scores for<br>• Students t-test<br>• Chi-square test<br>• Z-test<br>• ANOVA | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Distinguish between sensitivity and specificity.**<br>Sensitivity and Specificity<br>• Describe sensitivity and specificity<br>• Interpret False negatives and false positives<br>• Demonstrate Uses and applications | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **Demonstrate and interpret hypothesis testing, confidence intervals, confidence levels and p-values.** | IL<br>SGD | MCQ<br>SEQ<br>OSPE | C |
| **DENTAL MATERIALS** | | | |

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| **Adhesion and bonding and enamel & dentine bonding agent**<br>**Adhesion &Bonding**<br>• Describe the basic concept of adhesion and bonding<br>• Discuss the difference between Chemical Bonding, Mechanical Bonding, Micromechanical Bonding<br>**Etching systems and technique:**<br>• Describe various acid etch systems<br>• Discuss Enamel etching<br>• Analyze various applications of acid etch technique<br>• Discuss Dentine bonding<br>• Discuss the bond strength of resin with enamel and dentine<br>**Smear and hybrid layer:**<br>• Define Hybrid layer<br>• Discuss the components of hybrid layer and its formation<br>• Define Smear layer and discuss its removal<br>**Structure of enamel and dentine**:<br>• Discuss the chemical structure of enamel and dentine<br>• Define Primer and bonding agent<br>• Generations of bonding systems<br>**Etching methods:**<br>• Compare and contrast total etch method with self-etching, primer method<br>**Wet and dry bonding:**<br>• Discuss the difference between dry and wet bonding | IL<br>SGD | MCQ<br>SEQ | C |
| **Resin based composites**<br>• Describe the composition of resin based composites<br>• Classify composite based on filler particle size, application and method of activation of composites<br>• Discuss the mechanical and physical properties of dental composite<br>• Discuss the clinical applications of resin based dental composites<br>• Discuss the advantages and disadvantages of resin-based composites<br><br>**Laboratory skills:**<br>Demonstrate the clinical handling and restoration with dental composite restoration | IL<br>SGD<br>Practical | MCQ<br>SEQ<br>OSPE | C |
| **Finishing and polishing materials**<br>• Enlist various abrasives and their applications<br>• Differentiate between finishing and polishing<br>• Discuss instruments used for finishing and polishing of composite resins<br>• Discuss the difference between Immediate and delayed finishing<br>• Discuss the Variables which may affect the finishing and polishing of composite restorations | IL<br>SGD | MCQ<br>SEQ | C |
| **PRE-CLINICALS** | | | |
| **Class II Cavity:**<br>-Describe types of class II cavity<br>-Explain Principles of cavity preparation of class II cavity<br>-Enlist materials used for restoration of class II cavity<br>-Demonstrate cavity preparation for class II amalgam<br>-Demonstrate cavity preparation for class II composites | SGD | MCQ<br>SEQ<br>OSPE | C |

**LEARNING RESOURCES/RECOMMENDED BOOKS:**

**Pharmacology:**

1. Basic & Clinical Pharmacology by Katzung 14th Edition.

2. Rang and Dale Pharmacology 8 th Edition.
3. Basis of Pharmacology by Goodman & Gillman Latest Edition.
4. Bentley's Textbook of Pharmaceutics by Jain 2012 An adaption.
5. Medical Pharmacology & Therapeutics by Walker 3 rd Edition,
6. Netter's illustrated Pharmacology by RAFFA latest Edition.

**Pathology**:
1. Robbins and Cortan Pathologic basis of disease 10 th Edition
2. Basic Pathology by Kumar and Cotran 10 th Edition
3. Medical Microbiology and Immunology by Warren Levinson 14 th Edition

**Dental Materials:**
1. Phillips' Science of Dental Materials by Anusavice, Shen, Rawls 12 th edition
2. Applied Dental Materials by McCabe and Walls 9 th edition
3. Craig's Restorative Dental Materials by Sakaguchi, Powers 13 th edition

**Community Dentistry:**
1. Essentials of Preventive and Community Dentistry by Soben Peter 4 th edition
2. Textbook of Preventive and Community Dentistry by S S. Hiremath 2 nd edition
3. Textbook of Preventive and Community Dentistry by Joseph John 3 rd edition

**Prosthodontics:**
1. McCracken's Removable Partial Prosthodontics by Alan B. Carr and David T. Brown
2. Prosthodontic Treatment for Edentulous Patients by George Albert Zarb

**Operative Dentistry:**
1. Sturdevants art and Science
2. Evans Atlas

**Behavioral Sciences:**
1. Introduction to Psychology by Edward. E Smith.
2. Behavioral Science by Lippincott William

**FOR ENQUIRIES CONTACT:**
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**RIHS MEDICAL AND DENTAL COLLEGE**
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