MODULE- 03
PRE-CLINICAL DENTISTRY I (Healing, Repair & Dental Restorations -I)

2nd Year BDS

Themes

Table 1: Themes

S.NO	Theme	Duration in Weeks/hours
1.	**Discolored Tooth/Teeth**	49 hrs
2.	**Damaged Anterior Tooth/Teeth**	29 hrs
3.	**Damaged Posterior Tooth/Teeth**	76 hrs
	Total hours	154 hrs

Teaching Hours Allocation

Table 2: Hours allocation for different subjects

S. No	Subject	Hours
1.	General Pathology	25
2.	Pharmacology	20
3.	Chemistry of Dental Materials	49
4.	Community & Preventive Dentistry	37 (20 school visit hours)
5.	Oral Pathology	07
6.	Oral Biology	02
7.	Oral Medicine	02
8.	Pre-Clinical Operative Dentistry	04
9.	Pre-Clinical Prosthodontics	04
9.	Pediatric Dentistry	04
	Total	**154**

***7 Hours per day for 5 days (Monday to Friday) = 35 hours/ week**

Learning Objectives

By the end of this Module, 2nd year BDS students will be able to:

1. Describe the classification, composition, setting reaction, properties, applications, advantages, and disadvantages of direct restorative materials.
2. Explore metals and alloy systems to improve performance, biocompatibility and esthetic properties of various direct and indirect restorations.
3. Describe the composition, classification, setting reaction, properties, indications, and advantages/disadvantages of composite.
4. Discuss the enamel bonding system & dentine bonding system in detail.
5. Describe dental Amalgam's composition, classification, setting reaction, properties, indications, and advantages/disadvantages.
6. Discuss the composition, classification, setting reaction, properties, indications, and advantages/disadvantages of GIC.
7. Describe the Resin-modified glass ionomer, compomer, giomer, & cermets in detail.
8. Define & classify veneers, describe their fabrication methods and clinical techniques for placement, and highlight recent advancements in veneers.
9. Describe all aspects of fluorosis in detail.
10. Discuss the epidemiology and prevention of anterior teeth trauma.
11. Describe in detail all aspects of Atraumatic Restorative Treatment.
12. Discuss dental indices in detail.
13. Discuss the importance of school dental health for the community.
14. Describe wound healing and the process of repair by scarring, discuss steps and mediators involved in scarring.

15. Describe the cell cycle, discuss cells capable of entering the cell cycle, and the proliferative capabilities of various cells.
16. Enlist various factors and mechanisms by which these factors affect wound healing, discuss the formation of keloid and hypertrophic scars.
17. Discuss the medically important enterobacteriaceae diseases, important properties, clinical findings, laboratory diagnosis, and prevention.
18. Discuss the medically important entameba spp diseases, important properties, clinical findings, laboratory diagnosis and prevention.
19. Discuss minimal invasive dentistry.
20. Identify the types and ingredients of dentifrice.
21. Recognize drugs causing teeth discoloration.

Theme -01 (Discolored Tooth/teeth)			
Topic	**Learning Objectives**	**Hours**	
Oral Biology			
1. Introduction & Etiology of tooth discolouration	1.1 Identify the causes of tooth discoloration 1.2 Differentiate between extrinsic and intrinsic discoloration 1.3 Discuss the developmental process of amelogenesis & Dentinogenesis in relation to discoloration	02 hrs	
Oral Pathology			
2. Systemic causes of discolored teeth	2.1 Enlist systemic causes of discolored teeth. e.g. (Sickle Cell Anemia, B12 deficiency & Celiac Disease) 2.2 Discuss the role of iron in tooth discoloration.	02 hrs	

3. Amelogenesis Imperfecta.	3.1 Define **Amelogenesis Imperfecta**. 3.2 Explain its genetic basis. 3.3 Identify the various types of Amelogenesis Imperfecta (hypoplastic, hypocalcified, and hypomaturation forms). 3.4 Describe the clinical features of Amelogenesis Imperfecta, 3.5 Discuss the complications associated with this condition	01 hrs	
4. Dentinogenesis imperfecta.	4.1 Define **Dentinogenesis Imperfecta**. 4.2 Describe the genetic inheritance pattern of Dentinogenesis Imperfecta. 4.3 Differentiate between the three types of Dentinogenesis Imperfecta (Type I, Type II, and Type III). 4.4 Recognize the clinical presentation of Dentinogenesis Imperfecta 4.5 Discuss the histopathological characteristics of abnormal dentin and the associated structural defects.	01 hrs	
5. Enamel Hypoplasia	5.1 Define **Enamel Hypoplasia**	02 hrs	

	5.2Differentiate Enamel Hypoplasia from other enamel defects. 5.3Explain the etiological factors leading to Enamel Hypoplasia. 5.4Describe the clinical manifestations of Enamel Hypoplasia, 5.5Explian how Enamel Hypoplasia affects tooth structure, strength, and long-term prognosis. 5.6Identify the diagnostic methods used to differentiate Enamel Hypoplasia from other conditions like fluorosis or amelogenesis imperfecta. 5.7Discuss the treatment options for Enamel Hypoplasia.		
Oral Medicine			
6. Discoloration of teeth related to enamel and dentin	6.1 Discuss causes of discoloration of teeth 6.2 Discuss causes of discoloration of teeth related to disturbance in structure of enamel and dentin 6.3Discuss dietary modification to avoid tooth discoloration	2 hr	
Community Dentistry			
7. Fluoride	7.1Describe different types of fluorides.	1 hr	

	7.2 Discuss the mechanism of action of fluoride in prevention of dental caries. 7.3 Briefly describe the history of fluoride in dental public health. 7.4 Discuss water fluoridation and defluoridation. 7.5 Discuss methods of fluoride delivery.		
8. Fluorosis	8.1 Define Fluorosis 8.2 Describe types of fluorosis 8.3 Describe the Etiology of fluorosis. 8.4 Describe the different types of fluoride toxicity.	01 hrs	
Pharmacology			
9. Anti-Plaque Agents	9.1 Define dental plaque. 9.2 Describe the mechanism of action of pharmacological agents used to remove dental plaque including: • Antibacterial agents • Triclosan • Chlorhexidine • Fluorides • Xylitol • Pyrophosphate and Bicarbonates	01 hr	

10. Bleaching Agents & Drugs causing tooth discoloration	10.1 Define bleaching agents. 10.2 Describe types of bleaching agents. 10.3 Enlist different types of bleaching agents for special stains. 10.4 Enlist the adverse effects of bleaching agents 10.5 Enlist the drugs causing teeth discoloration.	01 hr	
Dental Materials			
11. Requirements of cavity lining, base and luting	11.1 Enlist the requirements of dental cements for lining, base and luting 11.2 Differentiate between cement thickness and film thickness 11.3 Describe types of cavity lining materials. 11.4 Discuss requirements of cavity linings and intermediate restorative materials.	2 hrs	
12. Zinc Phosphate Cements	12.1 Enlist various cements based on phosphoric acid. 12.2 Describe the composition and properties of zinc phosphate cement. 12.3 Explain the importance of proper mixing and handling techniques when working with zinc phosphate cement.	1 hr	

	12.4 Explain the setting reaction of zinc phosphate cement in detail. 12.5 Enlist the applications of zinc phosphate cement.		
13. Silicate Cements	13.1 Describe the composition and properties of silicate cement. 13.2 Explain the importance of proper mixing and handling techniques when working with silicate cement. 13.3 Explain the setting reaction of silicate cement. 13.4 Enlist the applications of silicate cement.	1hr	
14. Silicophosphate & Copper Cements	14.1 Describe the composition and properties of silicophosphate & copper cement. 14.2 Explain the setting reaction of silicophosphate & copper cement. 14.3 Enlist the applications of silicophosphate & copper cements.	1hr	
15. Zinc Oxide Eugenol Cement and its modifications	15.1 Enlist various cements based on organometallic chelate compounds. 15.2 Describe the composition and properties of zinc oxide eugenol cement.	2 hrs	

	15.3 Explain the importance of proper mixing and handling techniques when working with zinc oxide eugenol cement. 15.4 Explain the setting reaction of zinc oxide eugenol cement in detail. 15.5 Enlist the applications of zinc oxide eugenol cement. 15.6 Discuss the modifications in zinc oxide eugenol cement with respect to • Composition • Manipulation • Setting Reaction • Properties • Applications		
16. Calcium Hydroxide Cement	16.1 Describe the composition and properties of calcium hydroxide cement. 16.2 Explain the importance of proper mixing and handling techniques when working with calcium hydroxide cement. 16.3 Explain the setting reaction of calcium hydroxide cement in detail. 16.4 Enlist the applications of using calcium hydroxide cements.	1 hrs	

17. Mineral Trioxide Aggregate (MTA)	17.1 Describe the composition, setting reaction and properties of Mineral Trioxide Aggregate. 17.2 Recognize the various clinical applications of MTA in endodontics and restorative dentistry. 17.3 Describe the benefits of using MTA, including its biocompatibility and sealing ability.	1 hr	
18. Polycarboxylate cement.	18.1 Describe the composition and properties of polycarboxylate cement. 18.2 Explain the importance of proper mixing and handling techniques when working with polycarboxylate cement. 18.3 Explain the setting reaction of polycarboxylate cement in detail. 18.4 Enlist the applications of polycarboxylate cement.	1 hr	
General Pathology & microbiology			
19. Gram negative rods related to	19.1 Introduction to entrobacteriace and related organism	02	

enteric tract (E. Coli, Sallmonella, shigella & h. pylori)	19.2 Discuss the diseases, important properties, clinical findings, laboratory diagnosis and prevention of E. coli	01	
	19.3 Discuss diseases, important properties, clinical findings, laboratory diagnosis and prevention of Salmonella	01	
	19.4 Discuss the diseases, important properties, clinical findings, laboratory diagnosis and prevention of Shigella	01	
	19.5 Discuss the diseases, important properties, clinical findings, laboratory diagnosis and prevention of H. pylori		
	19.6 Discuss the food safety practices to prevent bacterial infection.	01	

Junior Prosthodontics			
20. Maxilla-mandibular relation:	20.1 Define maxillo-mandibular relation and explain its importance in complete denture construction. 20.2 Define the three types of jaw relations: vertical, horizontal, and orientation. 20.3 Explain the importance of accurate maxillomandibular relations for retention, stability.	01 hr	
Junior conservation			
21. Contacts and Contours	21.1 Describe the different tooth contacts Explain the different wedging techniques.	01 hr	
LAB WORK			
General Pathology			
22. Study of Various pathology lab instruments, machines, and rapid diagnostic devices	22.1 Analyze different aspects of Laboratory instruments and machines. 22.2 Demonstrate the proper use. 22.3 Summarize the proper care	02 hrs	

23. Preparation of blood film	23.1 Demonstrate different techniques of blood film and smear preparation	02 hrs	
24. Elisa	24.1 Analyze and interpret ELISA results in diagnosing infections like HIV and hepatitis	02 hrs	
Pharmacology			
25. Dosage forms	25.1 Identify different pharmaceutical dosage forms	01 hrs	
26. Prescription order	26.1 Identify the parts of the prescription order. 26.2 Discuss the significance of nutritional instruction while writing a prescription and counsel a patient on dietary modifications after a dental procedure	01 hrs 0.5 hrs	
27. Prescription writing of diseases	27.1 Write the prescription for acute tonsillitis 27.2 Write the prescription for pharyngitis	01 hrs	
Dental Materials			
28. Manipulation of zinc phosphate cement	28.1 Manipulate zinc phosphate cement according to manufacturer's guidelines. 28.2 Analyze the following characteristics of zinc phosphate cement: a. Working consistency b. Working time c. Setting time d. Properties	2 hr	
29. Manipulation of polycarboxylate cement	29.1 Manipulate polycarboxylate cement according to manufacturer's guidelines. 29.2 Analyze the following characteristics of zinc polycarboxylate cement: a. Working consistency	2 hr	

	b. Working time c. Setting time d. Properties		
30. Manipulation of zinc oxide eugenol cement	30.1 Manipulate zinc oxide eugenol cement according to manufacturer's guidelines. 30.2 Analyze the following characteristics of zinc oxide eugenol cement: a. Working consistency b. Working time c. Setting time d. Properties	2 hr	
31. Manipulation of calcium hydroxide cement	31.1 Manipulate calcium hydroxide cement according to manufacturer's guidelines. 31.2 Analyze the following characteristics of calcium hydroxide cement: a. Working consistency b. Working time c. Setting time d. Properties	2 hr	

Theme- 02 (Damaged anteriorTooth/teeth)			
Oral Pathology			
32. Pulpitis	32.1 Define pulpitis 32.2 Explain the etiology of pulpitis. 32.3 Describe the clinical signs and symptoms of pulpitis. 32.4 Discuss the histopathological changes that occur during pulpitis. 32.5 Explain the biological mechanisms involved in pulp healing. 32.6 Identify factors that influence the healing process of dental pulp.	01 hrs	
Pediatric Dentistry			
33. Sequalae of displacement injuries	33.1 Enumerate the different possible sequelae of Displacement injuries 33.2 Discuss the dietary instructions and modifications following dentoalveolar injuries.	02 hr	

	33.2 Define root resorption and discuss different types of root resorption. 33.3 Explain the physiological and pathological processes involved in root resorption. 33.4 Identify the common causes and risk factors associated with root resorption. 33.5 Discuss the role of trauma, and systemic conditions in the development of root resorption.		
Dental Materials			
34. Glass Ionomer Cements - introduction	34.1 Discuss the historical context and development of glass Ionomer cement (GIC). 34.2 Classify GIC on the basis of a. Clinical applications. b. Compositional modifications 34.3 Discuss cermets. 34.4 Describe the composition of GIC. 34.5 Explain the setting reaction of GIC in detail.	1 hr	

35. Glass Ionomer Cements – properties	35.1 Describe the properties of GIC. 35.2 Discuss the adhesion of GIC with tooth structure.	1 hr	
36. Glass Ionomer Cements – manipulative techniques	36.1 Describe following manipulative techniques of GIC with respect to clinical applications. • Matrix techniques • Atraumatic restorative technique (ART) 36.2 Sandwich technique	1 hr	
37. Requirements for direct filling materials	37.1 Define direct filling materials. 37.2 Enumerate reasons to restore tooth. 37.3 Explain various ideal requirements for direct filling materials. 37.4 Discuss historical perspectives of using direct filling materials.	2 hrs	

38. Resin based filling materials	38.1 Discuss • Resin based filling materials • Acrylic resins o Chemical Composition o Setting reaction o Applications o Properties o Advantages and disadvantages o Current status	1 hour	
39. Composites	39.1 Define composite and dental composites. 39.2 Describe the composition of the composite 39.3 Explain different types of resins and resin's properties. 39.4 Discuss the fillers and their role in composite.	1 hour	
40. Composites	40.1 Classify composite on base of filler, curing method, viscosity (flowable packable), and indications (core build-up, luting, anterior and posterior). 40.2 Explain polymerization reaction. 40.3 Discuss the depth of cure. 40.4 Discuss C – Factor. 40.5 Describe different light-curing units.	1 hour	
41. Composites	41.1 Describe the properties of dental composites.	1 hour	

	41.2 Discuss polymerization shrinkage, reasons, effects, and methods to reduce it. 41.3 Discuss advantages & disadvantages of composites in association with clinical scenarios.		
42. RMGIC and related materials	42.1 Define hybrid materials/products. 42.2 Classify hybrid products that involve blending of GIC and dental composites. 42.3 Compare glass ionomer cements, and dental composites. 42.4 Discuss modified composites in terms of composition, setting reaction, properties, and advantages /disadvantages. 42.5 Discuss resin modified glass ionomer cements in terms of composition, setting reaction, properties, and advantages /disadvantages.	1 hrs	
43. Giomers and compomers	43.1 Discuss giomers in terms of composition, setting reaction, properties, and advantages /disadvantages. 43.2 Discuss compomers in terms of composition, setting reaction, properties, and advantages /disadvantages.	1 hrs	
44. Adhesion and enamel bonding	44.1 Define adhesion 44.2 Describe three main mechanisms of adhesion of resins with the tooth structure. 44.3 Explain the enamel bonding system. 44.4 Explain acid etch technique and factors which affect success and failure of acid-etch bonding system. 44.5 Explain uses of acid etch technique.	1 hrs	

45. Dentine bonding	45.1 Describe dentine bonding system 45.2 Discuss smear layer in relation to bonding. 45.3 Explain dentine priming and hybrid layer. 45.4 Understand current concepts in dentine bonding.	1 hr	
46. Evolution of bonding systems	46.1 Discuss the total etch and self-etch method. 46.2 Discuss evolution of bonding system including polymerizable luting agent.	2 hr	
47. Bonding of resins to materials and bond strength	47.1 Discuss bonding resins to alloys, amalgam and ceramics. 47.2 Discuss bond strength and leakage measurements.	1 hrs	
Community Dentistry			
48. Epidemiology & Prevention of Trauma in anterior teeth of school-going children	48.1 Discuss the Epidemiology of anterior teeth trauma. 48.2 Enlist the causes & risk factors of anterior teeth trauma. 48.3 Discuss the prevention of trauma to anterior teeth.	1 hour	
Prosthodontics			
49. Articulators	49.1 Define an articulator and explain its purpose in complete denture fabrication. 49.2 Enlist its uses in Prosthodontics.	01 hr	

	49.3 List the different types of articulators based on its adjustability.		
LAB WORK			
General Pathology			
50. Collecting and transporting specimen	50.1 Identify Common Types of Clinical Specimens. 50.2 Demonstrate the appropriate techniques for collecting various clinical specimens. 50.3 Analyze and compare different techniques used for the transportation of various forms of specimen.	02 hrs	
Pharmacology			
51. Tyrode's solution	51.1 Prepare Tyrode's solution.	01 hrs	
52. Tissue organ bath and Kymograph	52.1 Identify the parts of kymograph and tissue organ bath assembly.	01 hrs	
Dental Materials			
53. Manipulation of glass ionomer cement	53.1 Manipulate glass ionomer cement according to manufacturer's guidelines. 53.2 Analyze the following characteristics of glass ionomer cement a. Working consistency b. Working time c. Setting time d. Properties	2 hr	
54. Manipulation of dental composites	54.1 Identify various components which needed for proper restoration with dental composites. 54.2 Manipulate dental composites according to manufacturer's guidelines	2 hr	

Theme- 03 (Damaged Posterior Tooth/teeth)			
Dental Materials			
56. Introduction to Metals and Alloys	56.1 Define metallurgy. 56.2 Define metals and alloys. 56.3 Enumerate steps by which metals are extracted. 56.4 Explain with examples methods by which shaping of metals and alloys can be accomplished.	1 hr	
57. Structure and Properties of Metals and Alloys	57.1 Explain the concept of crystal structure. 57.2 Describe the arrangement of atoms within a crystal lattice and its importance in determining material properties. 57.3 Identify alloys on the basis of elements present in the mixture. 57.4 Describe different types of solid solutions. 57.5 Explain the relationship between the composition and structure of solid solutions and their properties.	1 hr	

58. Cooling Curves and Phase Diagrams	58.1 Interpret cooling curves to determine the solidification behavior of metals and alloys. 58.2 Explain the effects of cooling rate on the microstructure and properties of alloys. 58.3 Interpret phase diagrams to determine the equilibrium phases present in an alloy system. 58.4 Interpret eutectic phase diagrams to predict the properties of alloys. 58.5 Explain the effects of composition and temperature on the phase behavior of alloys.	1 hr	
59. Amalgam	59.1 Define amalgam and dental amalgam. 59.2 Describe the composition of conventional and copper enriched alloy and identify function of each component of alloy used for dental amalgam. 59.3 Discuss manufacturing of different dental amalgam alloys. 59.4 Explain the setting reactions of conventional and copper-enriched alloys. 59.5 Describe the properties of dental amalgam and factors which have effects on these properties.	2 hrs	

60. Amalgam – Toxicity, manipulation and advantages/disadvantages	60.1 Discuss the importance of mercury toxicity and possible hazards. 60.2 Explain the steps of manipulations of amalgam. 60.3 Discuss pros and cons of amalgam. 60.4 Discuss the dietary instructions and modifications following dentoalveolar injuries.	2 hrs	
61. Direct Gold Restorations	61.1 Describe the properties and characteristics of pure gold that make it suitable for dental restorations. 61.2 Define cohesive and non-cohesive gold. 61.3 Explain the manipulative technique required for direct gold restorations, including: - Correct handling and condensation of gold foil - Shaping and adapting gold to the tooth preparation Sandwich Technique	2 hrs	
General Pathology			

62. Overview to tissue healing and repair	62.1 Differentiate between regeneration and repair 62.2 Describe various steps involved in the process of tissue healing and repair 62.3 Discuss the role of nutrition in healing and repair	01 hr	
63. Tissue regeneration	63.1 Define regeneration 63.2 Enlist organs capable of regeneration 63.3 Describe the process and mediators involved in regeneration	01 hr	
64. Cell Cycle and its role in repair	64.1 Define cell cycle 64.2 Describe the initiation, various phases, and proteins involved in the cell cycle 64.3 Discuss cells capable of entering the cell cycle 64.4 Describe the proliferative capabilities of various cells	01 hr	
65. Selected Clinical Examples of Tissue Repair and fibrosis	65.1 Describe the Healing of Skin Wounds both primary and secondary 65.2 Explain the mechanism of Fibrosis in Parenchymal Organs	01 hr	
66. Repair by scarring	66.1 Describe the various steps involved in the process of repair by scarring 66.2 Describe the various mediators involved in the steps of scarring	01 hr	

67. Growth factors and receptors	67.1 Enumerate various growth factors and their receptors 67.2 Describe the most common pathways by which growth factors affect tissue repair and regeneration	01 hr	
68. ECM	68.1 Classify various components of ECM 68.2 Describe the role and importance of ECM in tissue repair	01 hr	
69. Factors affecting wound healing/abnormal scarring	69.1 Enlist the various factors that influence wound healing 69.2 Describe the mechanism by which these factors affect wound healing 69.3 Describe the abnormalities of repair and their consequences 69.4 Describe the formation of keloid and hypertrophic scar	01 hr	
70. Amyloid	70.1 Analyze the role amyloid in health and disease 70.2 Evaluate the diagnostic approaches	01 hr	
Community Dentistry			
71. Atraumatic Restorative Technique (ART)	71.1 Define Atraumatic Restorative Treatment 71.2 Discuss its indications, contraindications, and method of application 71.3 Explain the procedure of ART. 71.4 List the advantages and disadvantages of ART.	01 hr	

72. Minimal invasive dentistry	72.1 Define MID. 72.2 Discuss its indication, contraindications and method of application.	1hour	
73. Dental Indices	73.1 Define an index 73.2 Explain the properties of an ideal index, 73.3 Discuss the purpose and uses of an index 73.4 Discuss the various indices such as dental caries and fluorosis (DMFT, DMFS, deft, dmfs, Dean's FI, CFI), gingival (GI, GBI, SBI), oral hygiene (Plaque Index, OHI, OHI-S, PHP) and periodontal (PI, CPITN) indices in detail 73.5 Discuss the advantages and limitations of different indices	04 hrs	
74. School dental health programmes and outreach programmes	74.1 Define the concept of school health programs and describe their importance in community health (WHO initiative). 74.2 Explain the aims of school dental health and the role it plays in preventing oral diseases among children. 74.3 Discuss the importance of early detection and the prevention of dental diseases in the school setting. 74.4 Critically assess the challenges and limitations of implementing comprehensive dental care in schools 74.5 Develop effective communication skills tailored to interacting with children and their caregivers about oral health.	20 hrs	

	74.6 Propose strategies for integrating dental health education into existing school health curricula to enhance long-term dental care among children		
Pharmacology			
75. Anesthetics -II (General Anesthetics)	75.1 Enumerate drugs used for pre-anesthetic medication. 75.2 Classify general anesthetics. 75.3 Describe the pharmacokinetics of general anesthetics. 75.4 Describe the mechanism of action, adverse effects, and drug interactions of inhalational anesthetics: • Nitrous oxide • Halothane • Isoflurane • Desflurane • Sevoflurane	02 hrs	

	75.5 Describe the pharmacokinetics of intravenous anesthetics. 75.6 Describe the mechanism of actions, adverse effects, and drug interactions of intravenous anesthetics: • Propofol • Ketamine • Etiomide • Barbiturates • Benzodiazepines • Opioids		
76. Neuromuscular blocking agents	76.1 Classify neuromuscular blocking agents 76.2 Describe the mechanism of action, pharmacological actions, therapeutic uses, adverse effects, contraindications, and drug interactions of depolarizing & non depolarizing agents.	02 hrs	
77. Anxiolytics-I (Benzodiazepines)	77.1 Classify Benzodiazepines 77.2 Describe the pharmacokinetics of benzodiazepines. 77.3 Describe the mechanism of action, pharmacological actions, adverse effects, and drug interactions of benzodiazepines	02 hrs	

	77.4 Enlist the therapeutic uses of benzodiazepines. 77.5 Describe benzodiazepine antagonist (Flumazenil)		
78. Anxiolytics-II (Antidepressants)	78.1 Classify antidepressants 78.2 Describe the pharmacokinetics of antidepressants 78.3 Describe the mechanism of action, pharmacological actions, therapeutic uses, adverse effects, contraindications, and drug interactions of: • SSRI's • SNRIs • Tricyclic Antidepressants • Atypical Antidepressants • MAOIs	02 hrs	
79. Antiepileptics	79.1 Classify antiepileptics 79.2 Describe the pharmacokinetics of antiepileptics 79.3 Describe the mechanism of action, pharmacological actions, therapeutic uses, adverse effects, contraindications, and drug interactions of: • Carbamazepine, • Phenytoin • Gabapentin and pregabalin • Valproic acid 79.4 Discuss the role of the ketogenic diet in epileptic patients	03 hrs	

	79.5 Enlist seizure-triggering foods for epileptic patients		

Pediatric Dentistry			
80. Scientific basis of caries prevention	80.1 Appreciate the role of dental health education 80.2 Enlist the aims in providing dietary advice and diet modification to reduce caries. 80.3 Explain oral hygiene instructions to the child and parents 80.4 Communicate the current messages in prevention of caries in children 80.5 Explain prevention of caries by increasing the resistance of the tooth and role of fissure sealants 80.6 Enlist various types of fissure sealants 80.7 Differentiate between various types of sealant materials 80.8 Describe their properties, advantages, and disadvantages of different fissure sealant materials 80.9 Decide why, who, when and where apply the fissure sealants 80.10 Explain how fissure sealants can be applied efficiently (step by step) on young children	02 hrs	

	80.11 Explain the mechanism of action of pits and fissure sealant in prevention of caries.		
Junior Operative			
81. Restoration of Class 2 Cavity	81.1 Explain the different features of class 2 cavity for amalgam and composite restorations 81.2 Explain the advantages and disadvantages of amalgam and composite restorations in class 2 cavity.	1 Hrs	
82. Matrix & Retainer System	82.1 Define & classify matrix and retainer systems 82.2 Enlist indications for the use of matrix systems 82.3 Enlist advantages of using matrix systems 82.4 Plan use of different matrix systems according to different clinical situations	01 hrs	
83. Pulp Protecting Agents	83.1 Classify liners and bases 83.2 Describe their composition and properties 83.3 Enlist their indications and advantages 83.4 Demonstrate application liners & bases	01 hr	
Prosthodontics			
84. Tooth setup	84.1 Explain positioning of anterior teeth as seen in frontal, lateral and incisal/ occlusal view. 84.2 List the anatomical and esthetic guidelines for positioning maxillary and mandibular anterior teeth 84.3. Define key terms used in anterior tooth setup (midline, incisal edge position, labial inclination, cervical prominence, overjet, overbite). 84.4. Explain the ideal positioning of anterior teeth as viewed from the frontal, lateral, and incisal/occlusal perspectives.	2hrs	

	84.5 Describe how lip support, esthetics, phonetics, and occlusion influence the placement of anterior teeth.		
LAB WORK			
General Pathology			
85. Healing by connective tissue-	85.1 Enlist the components of granulation tissue	02 hrs	

ulcer-Granulation tissue	85.2 Identify the gross and microscopic picture of granulation tissue		
Pharmacology			
86. IV setup	86.1 Identify the parts and working of basic IV setup	02hrs	
Community Dentistry			
87. Atraumatic restorative treatment	87.1 Demonstrate the application of atraumatic restorative procedures in a community/ simulated environment.	02 hrs	
88. Dental Indices	88.1 Demonstrate the measurement of different indices on study models 88.2 Discuss the merits and demerits of different oral disease indices	04 hrs	
89. Fluorosis index	89.1 Explain fluorosis Index. 89.2 Calculate dean's fluorosis index on the given model.	2 hr	
Dental Materials			
90. Manipulation of dental amalgam	90.1 Manipulate dental amalgam according to manufacturer guidelines.	02 hr	