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**MAHARASHTRA INSTITUTE OF DENTAL
SCISCIENCES & RESEARCH (DENTAL COLLEGE)**



Address: Vishwnath Puram,
Ambajogai Road
Latur,413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
Website: www.mitmidr

2.6.3 Course – Specific Learning Outcomes For BDS Courses



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midsr.latur@gmail.com
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1. DEPARTMENT OF ORAL PATHOLOGY

COURSE OUTCOME

A) COURSE OUTCOME FOR IBDS COURSE :-

| Dental Anatomy, Embryology and Dental Histology | | | |
|--|---|---|--|
| Sr No | Name Of The Topic | Learning Objectives | Outcome (Student should be able to) |
| 1. | Introduction to tooth morphology | a. Classification of Dentition b. Dental Formula c. Definitions & Terminologies | a. Various tooth notations b. Communication using dental terminologies |
| 2. | Morphology of permanent teeth | Various traits of permanent teeth | Identification of permanent teeth |
| 3. | Morphology of deciduous teeth | Various traits of deciduous teeth | a. Identification of deciduous teeth b. Differences between permanent & deciduous teeth |
| 4. | Occlusion | a. Define occlusion. b. Define Traumatic occlusion. c. Define Bonwill's triangle. Describe development of dentition d. Give chronology of dev. e. Define and describe Contact relation f. Describe deciduous arch form & tooth relation. g. Define and describe Incisal guidance h. Define and describe Condylar guidance i. Define and describe Angulation of teeth j. Define and describe Neuro-behavioral aspects of occlusion | a. Molar occlusal relation b. Freeway, leeway & spill ways. c. Various occlusal curves- Spee, Monson, Wilson Development of dentition d. Chronology of development of dentition e. Contact relation of dentition f. Deciduous arch form & tooth relation. g. Molar occlusal relation h. Freeway, leeway & spill ways. i. Various occlusal curves- Spee, Monson, Wilson j. Incisal guidance k. Condylar guidance l. Angulation of teeth m. Neuro-behavioral aspects of occlusion |
| 5. | Development of face, jaws, lip, palate and tongue with applied aspects | a. Describe development of frontonasal, maxillary and mandibular prominences b. Explain development of | a. Milestones in the development of face, jaws, lips, palate and tongue. b. Derivatives of Pharyngeal |



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| | <p>Development of face, jaws, lip, palate and tongue with applied aspects</p> | <p>primary palate and nose</p> <p>c. Describe development of eyes and external ear.</p> <p>d. Describe development of palate its anomalies.</p> <p>e. Development of lips –upper and lower.</p> <p>f. Anomalies of lip</p> <p>g. Development of palate</p> <p>h. Anomalies of palate</p> <p>i. Discuss the development of facial tissues and pharyngeal arches.</p> <p>j. Describe the prenatal and postnatal development of mandible.</p> <p>k. Enumerate the Common Anomalies Related To Mandibular Development.</p> <p>l. Describe the Pre-natal growth of maxilla</p> <p>m. Describe the Post-natal growth of maxilla</p> <p>n. Discuss the applied aspects of development of maxilla</p> <p>o. Describe Development of tongue and</p> <p>p. Nerve Supply of tongue</p> <p>q. Describe Formation of frenum and papillae</p> <p>r. Development of musculature of tongue.</p> | <p>arches.</p> <p>c. Anomalies affecting facial structures.</p> <p>d. Vascular and neural supply of facial structures.</p> |
| <p>6.</p> | <p>Development of teeth</p> | <p>a. Introduction</p> <p>b. How the tooth development begins</p> <p>c. Phases of tooth development</p> <p>d. Primary epithelial band</p> <p>e. Dental lamina</p> <p>f. Vestibular lamina</p> <p>g. Successional lamina</p> <p>h. Parent lamina</p> <p>i. Stages of tooth development</p> | <p>a. Define Development of tooth.</p> <p>b. Enumerate the stages of development of tooth</p> <p>c. Physiological & Morphological Stages of Tooth development</p> |
| <p>7.</p> | <p>Eruption of teeth</p> | <p>a. Define eruption</p> <p>b. Enumerate phases of tooth eruption</p> | <p>a. Mixed dentition: presence of both dentitions</p> <p>b. Definition</p> |

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| | | <ul style="list-style-type: none"> c. Describe the eruptions phases d. Describe the histology of tooth movement e. Describe the mechanism of tooth eruption movement f. Enlist and define types of tooth eruption g. Describe clinical consideration of eruption | <ul style="list-style-type: none"> c. Phases of tooth eruption & d. Eruptive tooth movement Phases of tooth eruption & e. Eruptive tooth movement |
| 8. | Shedding of teeth | <ul style="list-style-type: none"> a. Definition of shedding b. Theories of tooth shedding c. Factors affecting tooth shedding | <ul style="list-style-type: none"> a. Ages of tooth shedding b. Over-retention c. Delayed eruption / shedding. d. Over retained deciduous or permanent teeth. |
| 9. | Enamel | <ul style="list-style-type: none"> a. Enumerate various stages of amelogenesis b. Describe the morphology of ameloblast cell in various stages of amelogenesis c. Describe modification of the matrix during various stages of amelogenesis d. Describe secretary stage e. Define transitional stage f. Describe maturation stage g. Describe post maturation h. Describe mineralization | <ul style="list-style-type: none"> a. Various stages of amelogenesis b. The morphology of ameloblast cell in various stages of amelogenesis c. Modification of the matrix during various stages of amelogenesis d. Modification of the matrix during various stages of amelogenesis b. Various stages of enamel formation c. Various proteins involved in the formation of enamel d. Surface structures of enamel |
| 10. | Dentin | <ul style="list-style-type: none"> a. Describe Cells responsible for the formation of dentin. b. Differentiation of odontoblasts c. Described Life cycle of odontoblasts d. Write about Incremental lines of dentin e. Enumerate Age and functional changes in dentin f. Described Theories of pain transmission in dentin & g. Enumerate Clinical implications | <ul style="list-style-type: none"> a. Differentiation of odontoblasts & b. Life cycle of odontoblasts c. Various stages in formation of dentin. d. Various theories of mineralization e. Incremental lines of dentin, Age and functional changes in dentin, Theories of pain transmission in dentin & f. Clinical implications |
| 11. | Cementum | <ul style="list-style-type: none"> a. Cementogenesis | <ul style="list-style-type: none"> a. Structure, Production and |



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| | | <ul style="list-style-type: none"> b. Growth Pattern c. Cementoenamel junction Resorption & repair d. Functions of cementum e. Anatomic Repair f. Cementicles g. Cementosis (Hypercementosis, cementum Hypertrophy, cementum Hyperplasia) | <ul style="list-style-type: none"> function of cementum b. Clinical significance of repair |
| 12. | Pulp | <ul style="list-style-type: none"> a. Enumerate Functions of dental pulp b. Write Blood supply of pulp c. Write Nerve supply of pulp d. Write Lymphatic drainage of pulp e. Enlist various regressive and age changes associated with pulp. | <ul style="list-style-type: none"> a. Blood supply of pulp b. Nerve supply of pulp c. Lymphatic drainage of pulp d. Functions of dental pulp e. Various regressive and age changes associated with pulp |
| 13. | Periodontal Ligament | <ul style="list-style-type: none"> a. Describe principal fibers of periodontal ligament. b. Describe groups of gingival fibers. c. Enumerate functions of Periodontal Ligament d. Well labeled diagram of Periodontal & Gingival Group of Fibers. e. Development & Evolution of PDL. f. Describe Cells of PDL. | <ul style="list-style-type: none"> a. Describe the principle fibers of periodontal ligament. b. Functions of principle fibers of periodontal ligament. c. Different groups of gingival fibers. d. The general characteristics of periodontal ligament, development and evolution of periodontal ligament & cells of periodontal ligament. |
| 14. | Alveolar Bone | <ul style="list-style-type: none"> a. Enumerate Functions of the skeletal system b. Write Composition of alveolar bone c. Write Classification of alveolar bone. | <ul style="list-style-type: none"> a. Describe Composition, Functions. b. Classification of Bones |
| 15. | Oral Mucous Membrane | <ul style="list-style-type: none"> a. Define OMM and give classification of OMM. b. Describe Basal lamina & Basement Membrane. c. Histopathological structure of Gingiva, Labial & Buccal Mucosa, Palatal mucosa, Vermilion border. | <ul style="list-style-type: none"> a. Classification of OMM & different cell types. b. Function of OMM c. Features of Gingival sulcus & Dentinogingival Junction d. Age changes & Applied Histology. |



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| | | d. Histopathology of Specialized mucosa. | |
| 16. | Salivary Glands | <ul style="list-style-type: none"> a. Classify Salivary Gland b. Describe the Morphological Structure of Salivary Glands & c. Explain the development of Salivary Glands d. Describe development of salivary glands e. Write microscopic Structure of Salivary Glands f. Enumerate Functions of saliva g. Give mechanism of flow of saliva h. Draw well labeled diagrams of salivary glands i. Enumerate Clinical considerations | <ul style="list-style-type: none"> a. Classify salivary glands, morphological structure of salivary glands & development of salivary glands. b. Development of salivary glands, microscopic structure of salivary glands, composition & mechanism of flow of saliva. c. Clinical considerations |
| 17. | Temporo-mandibular Joint | <ul style="list-style-type: none"> a. Classify joints b. Describe development of temporomandibular joint c. Explain functional anatomy of joint d. Describe articular disc e. Explain capsule of temporomandibular joint f. Describe ligaments of joint and g. Explain origin and insertion ligaments h. Enumerate primary muscles of mastication i. Differentiate between actions, origin and insertion of the j. Describe the nerve supply of TMJ joint k. Enumerate clinical considerations of TMJ joint | <ul style="list-style-type: none"> a. Describe classification of TMJ joints, development of temporomandibular joint, explain functional anatomy of joint. b. Describe articular disc, capsule of temporomandibular joint, ligaments of joint and origin & insertion ligaments. c. Primary muscles of mastication d. Masticatory actions e. Origin and insertion of the various muscles of mastication f. Nerve supply of joint g. Clinical considerations of joint |
| 18. | Maxillary Sinus | <ul style="list-style-type: none"> a. Define and enlist boundaries of Maxillary sinus b. Describe Structures and Variations in sinus | <ul style="list-style-type: none"> a. Maxillary sinus b. Structures and Variations in sinus c. Microscopic features of |



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| | | c. Enlist microscopic features of maxillary sinus d. Enumerate functional of maxillary sinus e. Give clinical considerations of sinus | maxillary sinus d. Functional importance of sinus & e. Clinical considerations of sinus |
| 19. | Tissue Processing & Histo-techniques | a. Describe different tissue processing techniques. b. Classification of stains used. c. Routine stain and special stains | a. Histo-techniques used in dental histology b. Stains |
| 20. | Theories Of Mineralization | a. Describe the composition of organic matrix in hard tissue b. Enumerate composition of mineral content c. Explain different theories of mineralization | a. Describe the composition of organic matrix in hard tissue. b. Enumerate composition of mineral content. c. Explain different theories of mineralization. |
| 21. | Physiology of taste | a. Describe the anatomy of taste b. Enumerate taste Pathways c. Enlist different types of taste & their distribution d. Describe histology of taste cell e. Describe taste transduction | a. The anatomy of taste b. Enumerate taste pathways c. Enlist different types of taste & their distribution d. Portray histology of taste cell e. Describe taste transduction |
| 22. | Physiology of speech | a. Describe the anatomy Of Speech b. Describe the Physiology Of Speech c. Describe the Neural Basis Of Speech d. Explain Sound production & classification e. Explain the Tooth Position And Speech f. Enlist Dental clinical considerations | a. Describe anatomy of speech, physiology of speech, neural basis of speech, sound production & classification, tooth position and speech and dental. b. Clinical considerations. |

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1. DEPARTMENT OF ORAL PATHOLOGY

B) COURSE OUTCOME FOR III BDS COURSE:-

| Oral Pathology & Microbiology | | | |
|-------------------------------|---|--|--|
| Sr No | Name Of The Topic | Learning Objectives | Outcome (Student should be able to) |
| 1. | Developmental Disturbances of Oral & Para oral Structure | a. Introduction b. Classification c. Etiological factors in congenital developmental anomalies d. Classification of developmental disturbances of oral and paraoral structures e. Agnathia f. Developmental Disturbances Of JAWS & DENTAL ARCH g. Cleft lip / palate h. Craniosynostosis i. Hemifacial microsomia j. Vascular malformation k. Hemangioma l. Deformational plagiocephaly m. Reactive lymphoid aggregate n. Lymphoid hamartoma o. Angiolymphoid hyperplasia with eosinophilia p. Lymphoepithelial cyst q. Premature eruption r. Eruption sequestrum s. Delayed eruption t. Multiple unerupted teeth u. Embedded or Impacted teeth v. Submerged teeth w. Developmental Disturbances of the Tongue | a. genetic classification of various oral and paraoral disorders b. etiological factors in congenital developmental anomalies c. classification of oral and paraoral structures depending on location. d. Describe congenital developmental anomalies of Jaws and their effects e. Types of craniofacial anomalies f. Developmental disturbances of lips & palate g. Developmental disturbances of oral mucosa h. Developmental disturbances in shape of teeth i. Developmental disturbances in number of teeth j. Developmental disturbances in structure of teeth k. Reactive lymphoid aggregate l. Lymphoid hamartoma m. Angiolymphoid hyperplasia with eosinophilia n. Lymphoepithelial cyst o. Developmental disturbances in the Eruption of Teeth p. Various developmental disorders affecting the tongue |

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| | | | <p>q. Effects of various disorders of tongue</p> <p>r. Treatment modalities for various developmental disturbances</p> |
| 2. | Odontogenic Cysts | <p>a. Definition of Cyst</p> <p>b. Classification of Odontogenic Cyst</p> <p>c. Describe in details all odontogenic cyst.</p> <p>d. Differential diagnosis of each type of odontogenic cyst</p> | <p>a. Identification, classification and features of odontogenic cyst.</p> <p>b. Differential diagnosis and clinical treatment of each type.</p> |
| 3. | Odontogenic Tumor | <p>a. Classification of Odontogenic Tumors</p> <p>b. Tumors arising from Odontogenic Epithelium</p> <p>c. Tumors arising from Odontogenic Epithelium and Odontogenic Mesenchyme</p> <p>d. Malignant Odontogenic Tumors</p> <p>e. Odontogenic Carcinomas</p> <p>f. Odontogenic Sarcomas</p> | <p>a. Revised Classification Of Odontogenic Tumors</p> <p>b. Clinical, radiographic, histopathological features of each type of odontogenic tumors</p> <p>c. Differential diagnosis and treatment plan for the same.</p> |
| 4. | Dental Caries | <p>a. Define caries</p> <p>b. Describe all theories regarding the caries</p> <p>c. Enlist drawbacks and positive points of all theories</p> <p>d. Classify caries</p> <p>e. Describe different types of caries and their clinical appearance</p> <p>f. Describe & identify the zones of enamel caries</p> <p>g. Describe and identify zones of dentinal caries</p> <p>h. Describe different methods of diagnosis of caries</p> <p>i. Describe all the methods of caries prevention</p> <p>j. Enlist commonly employed caries activity tests</p> <p>k. Describe positive and negative points for all the diagnostic tests</p> | <p>a. Identification, classification and diagnosis of enamel, dentin and cemental caries.</p> <p>b. Various diagnostic tools for diagnosis.</p> <p>c. Recent advances in diagnosis and immunization for dental caries.</p> |
| 5. | Pulp And Periapical Pathology And Osteomyelitis | <p>a. Pathophysiology of the pulp disorders</p> <p>b. Etiological factors for the pulp diseases</p> <p>c. Classification of pulpal diseases</p> <p>d. Etiology, clinical features, histological</p> | <p>a. Classification of pulpal & periapical diseases.</p> <p>b. Identification & diagnosis of pulpal diseases.</p> <p>c. Pulp sensitivity test</p> |



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| | | <p>features and treatment of focal reversible pulpitis</p> <p>e. Focal irreversible pulpitis</p> <p>f. Pulp necrosis</p> <p>g. Gangrenous necrosis of pulp</p> <p>h. Pathophysiology of periodontal diseases</p> <p>i. Etiology. Clinical features, histological features and treatment of</p> <ol style="list-style-type: none"> 1. Acute periapical conditions 2. Periapical abscess 3. Periapical granuloma <p>j. Pathophysiology of osteomyelitis</p> <p>k. Classification of osteomyelitis</p> <p>l. Etiology, clinical features, radiological features histological features and treatment of</p> <ol style="list-style-type: none"> 1. Acute osteomyelitis 2. Chronic osteomyelitis | <p>d. Differential diagnosis & treatment of Pulpal diseases.</p> <p>e. Classification, identification and diagnosis of Osteomyelitis.</p> <p>f. Differential diagnosis & Treatment of Osteomyelitis.</p> |
| 6. | Periodontal Diseases | <p>a. Differentiate between healthy gums & diseased gums</p> <p>b. Describe general outline of Periodontal diseases</p> <p>c. Definition, Types, Clinical features of- Gingivitis, Necrotizing ulcerative gingivitis, Plasma cell gingivitis, Granulomatous gingivitis, Gingival fibromatosis.</p> <p>d. Difference between all types.</p> <p>e. Define Chronic Periodontitis,</p> <p>f. Describe etiology and clinical features of Chronic Periodontitis</p> <p>g. Define Aggressive Periodontitis</p> <p>h. Describe etiology and clinical features of Aggressive Periodontitis</p> <p>i. Define Necrotizing Ulcerative Periodontitis</p> <p>j. Describe etiology and clinical features of Necrotizing Ulcerative Periodontitis</p> <p>k. Describe definition, clinical features of Gingival abscess</p> <p>l. Describe precipitating factors & clinical features of Periodontal Abscess</p> <p>m. Enlist clinical manifestations seen in</p> | <p>a. Classification of gingival & periodontal diseases.</p> <p>b. Clinical features, differential diagnosis & treatment of each type.</p> <p>c. Prophylaxis and indices of Gingivitis and periodontitis.</p> |



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| | | Papillon-Lefèvre Syndrome n. Describe clinical features & treatment of Pericoronitis | |
| 7. | Viral Infection | a. Introduction b. Classification c. Pathogenesis d. Clinical diagnosis e. Histopathological diagnosis f. Laboratory diagnosis 1. Direct 2. Indirect 3. Serology | a. Classification, clinical features, oral manifestations, differential diagnosis and treatment aspect of each viral lesion affecting oral cavity. b. Iatrogenic herpetic infection c. Signs of post herpetic neuralgia and its management. |
| 8. | Benign Epithelial Tumors Of Oral Cavity | Describe clinical features, pathogenesis,, histologic features, differential diagnosis, treatment & prognosis of the lesion 1. Papilloma 2. Squamous Acanthoma 3. Keratoacanthoma 4. Pigmented cellular nevus 5. Spindle cell nevus 6. Blue nevus 7. Junctional nevus 8. Compound nevus | a. Difference between benign and malignant lesions b. Identification & diagnosis of each benign tumor of oral cavity. c. Differential diagnosis & treatment of each type. d. Clinico-pathological correlation for each type. |
| 9. | Benign Mesenchymal Tumors Of Oral Cavity | a. Clinical features, pathogenesis, histologic features, radiographic features, treatment and prognosis of the lesion 1. Fibroma 2. Fibromatosis 3. Giant cell fibroma 4. Central ossifying fibroma 5. Peripheral giant cell granuloma 6. Central giant cell granuloma 7. Aneurysmal bone cyst 8. Lipoma 9. Myxoma 10. Neurofibroma 11. Neurilemoma 12. Oral hemangioma 13. Lymphangioma 14. Leiomyoma 15. Chondroma 16. Osteoma 17. Torus Palatinus & Torus | a. Difference between benign and malignant lesions b. Identification & diagnosis of each benign tumor of oral cavity. c. Differential diagnosis & treatment of each type. d. Clinico-pathological correlation for each type. |



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| | | Mandibularis | |
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| 10. | Malignant Epithelial Tumors Of Oral Cavity | a. Define pre-malignant lesions and conditions b. Define dysplasia & Enumerate dysplastic features, c. Clinical features, Histopathology, Recurrence, Differential diagnosis, Treatment and prognosis of the lesion 1. Oral lichen planus 2. Leukoplakia 3. Oral submucous fibrosis d. Etiology, Clinical features, Histopathology, Recurrence, Treatment and prognosis of the lesion 1. Squamous cell carcinoma 2. Carcinoma of maxillary sinus 3. Basal cell carcinoma 4. Malignant Melanoma 5. Merkel cell carcinoma | a. Classification of pre-malignant lesions and conditions. b. Clinical features, differential diagnosis and treatment for each one. c. Classification of malignant epithelial tumors of oral cavity. d. Clinical features, differential diagnosis and treatment plan for each one. e. TNM staging criteria for squamous cell carcinoma. f. ABCD criteria for diagnosis of malignant melanoma. |
| 11. | Malignant Mesenchymal Tumors Of Oral Cavity Malignant Mesenchymal Tumors Of Oral Cavity | a. Differentiate between sarcoma and carcinoma b. Describe Classification, incidence, etiology, clinical features & histopathological features of 1. Fibrosarcoma 2. Kaposi's sarcoma 3. Ewing's Sarcoma 4. Chondrosarcoma 5. Osteosarcoma 6. Hodgkin's lymphomas. 7. Non-Hodgkin's lymphoma. 8. Burkitt's Lymphoma 9. Plasmacytoma & multiple myeloma 10. Leiomyosarcoma 11. Metastatic tumors of jaws. e. Clinical Ann Arbor Staging Classification | a. Classification of malignant mesenchymal tumors of oral cavity. b. Clinical features, differential diagnosis and treatment plan for each one. c. Classification of Lymphoma d. Diagnostic criteria for each type e. Clinico-pathological correlation for each type. |
| 12. | Diseases of Nerve & Muscles | a. Describe the Disturbances of the fifth cranial nerve b. Describe the Disturbances of the seventh cranial nerve c. Describe the Disturbances of the ninth cranial nerve d. Describe the Horner's syndrome | a. Clinical features, differential diagnosis and treatment plan for each neural or muscular diseases affecting oral cavity. b. Oral manifestations c. Treatment plan for each |

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|-----|--|--|---|
| | | e. Describe the Myasthenia Gravis | type. d. Gustatory Sweating |
| 13. | Regressive Alterations Of Oral Cavity | a. Classify regressive alterations of oral cavity b. Regressive alterations of enamel, Dentin, cementum and pulp c. Regressive alterations in mucosa d. Active and Passive tooth movements | a. Identification and diagnosis of regressive alterations affecting oral cavity b. Age changes affecting the tooth & bone structure c. Treatment changes for Geriatric Patients |
| 14. | Salivary Gland Tumors | a. Introduction b. Histology of salivary gland c. Development d. Histogenesis of salivary gland tumors e. Classifications f. Benign salivary gland tumors. g. Malignant tumors h. Histopathological variants of salivary gland tumours | a. Classify Salivary gland tumors b. Histopathological Diagnosis c. Treatment modalities for malignant salivary gland tumors |
| 15. | Mucocutaneous Diseases | a. Describe different terminologies of surface lesions b. Clinical features, Oral manifestations, Histopathological features, Differential diagnosis of 1. Pemphigus Vulgaris 2. Variants of Pemphigus 3. Pemphigoid, Erythema Multiforme 4. Hereditary ectodermal dysplasia 5. Psoriasis 6. Epidermolysis bullosa 7. Incontinentia pigmenti 8. Stevens- Johnson syndrome 9. Lupus Erythematosus 10. Scleroderma 11. Keratosis Follicularis 12. Dyskeratosis congenita 13. White sponge nevus 14. Acanthosis Nigricans 15. Ehlers-danlos syndrome 16. Goltzs syndrome | a. Identification of different surface lesions b. Clinical features, differential diagnosis and treatment plan for mucocutaneous lesions affecting oral cavity. c. Immunohistological patterns for each mucocutaneous diseases. |
| 16. | Diseases Of Maxillary Sinus | a. Classification of the Maxillary sinusitis b. Clinical features, radiographical features, histopathology, differential diagnosis and treatment plan for each | a. Differentiation of maxillary sinusitis form tooth pain b. Pneumatization of maxillary posterior teeth c. Surgical aspect of treatment |



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Ambajogai Road
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Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
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| | | type | plan |
|-----|---|--|--|
| 17. | Forensic Odontology | <p>c. Radiographical differential diagnosis.</p> <p>a. Dental identification procedures b. Identification in Disasters c. Identification from dental DNA d. Classification of palatal Rugae / Rugaeoscopy and its application e. Reconstructive Dental identification f. Dental Profiling g. Describe Cheiloscopy and its application h. Describe in detail Bite Mark analysis and its application i. Crime Investigation j. Dentist as an Expert Witness</p> | <p>a. Age estimation using Dental Analysis b. Maintenance of Dental Records c. Use of Dental Records in Legal matters d. Emergency Triage management</p> |
| 18. | Diseases of the blood and blood forming organs | <p>a. Describe mechanism of haemostasis b. Enlist Clotting disorders c. Describe clinical & laboratory assessment d. Differentiate between Haemophilia, Pseudo haemophilia & Para haemophilia e. Differentiate between Afibrinogenemia & dysfibrinogenemia f. Describe Macroglobulinemia g. Describe definition, types, classification, etiology, clinical features, lab. Findings & treatment of 1. Purpura 2. Thrombotic thrombocytopenic purpura 3. Wiscott aldrich syndrome 4. Thrombocytasthenia h. Define anaemia i. Enlist various types of anaemia j. Describe clinical features of pernicious and aplastic anaemia k. Lab investigations of pernicious and aplastic anaemia l. Describe etiology, clinical features, histopathological features of 1. Leukocytosis 2. Agarnulocytosis 3. cyclic neutropenia 4. Infectious mononucleosis</p> | <p>a. Classification of RBCs, WBCs and platelet diseases affecting oral cavity. b. Clinical features, diagnosis, differential diagnosis and treatment aspect of each diseases. c. Dental treatment modifications required for these patients. d. Hemostasis and dental management.</p> |



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| | | | |
|-----|-----------------------------|--|--|
| | | 5. Leukemia 6. Qualitative Leukocyte Disorders | |
| 19. | Healing of oral wounds | a. Factors affecting Healing of Oral wounds b. Complications during Wound Healing c. Biopsy & Heaing of Biopsy Wound d. Healing of Extraction Wounds and its complications e. Healing of Bone Fractures and its complications f. Replantation, Transplantation and Implants | a. Different types of Healing after Dental Procedures b. Various factors affecting the Healing in oral cavity c. Healing after Replantation, Transplantation of tooth d. Healing after Implant Placement |
| 20. | Diseases of bone and joints | a. Classification of fibroosseous lesions b. Pathogenesis, types, & clinical features of fibrous dysplasia c. Clinical features, oral manifestations, radiographic features, histopathological features, & surgical management of 1. fibrous dysplasia 2. Periapical Cemento-osseous Dysplasias 3. Focal Cemento-osseous Dysplasias 4. Florid Cemento-osseous Dysplasias 5. Paget's disease 6. Cherubism 7. Cleidocranial Dysplasia 8. Osteogenesis Imperfecta 9. Osteopetrosis. d. Classification of Reactive (dysplastic) lesions arising in the tooth bearing areas | a. Classification and diagnosis of various fibroossusous lesions affecting oral cavity. b. Differential Diagnosis and radiographic features of each lesion. c. Histopathological identifications of these lesions. |

A. Sejar
Principal
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Address: Vishwnath Puram,
Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
Website: www.mitmidsr

2. DEPARTMENT OF PERIODONTOLOGY

COURSE SPECIFIC OUTCOMES FOR IV BDS

At the end of course the will be able to understand following concepts:-

- 1. Introduction:** Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
- 2. Development of periodontal tissues, micro-structural anatomy and biology of periodontal tissues in detail** **Gingiva:** Junctional epithelium in detail, Epithelial-Mesenchymal interaction, Periodontal, ligament Cementum, Alveolar bone.
- 3. Defensive mechanisms in the oral cavity:** Role of-Epithelium, Gingival fluid, Saliva and other defensive mechanisms in the oral environment.
- 4. Age changes in periodontal structures and their significance in Geriatric dentistry:** Age changes in teeth and periodontal structures and their association with periodontal diseases
- 5. Classification of periodontal diseases:**
Need for classification, Scientific basis of classification, Classification of gingival and periodontal diseases as described in World Workshop1989
Gingivitis:
Plaque associated, ANUG, steroid hormone influenced, Medication influenced, Desquamative gingivitis, other forms of gingivitis as in nutritional deficiency, bacterial and viral infections etc.
Periodontitis:
Adult periodontitis, rapidly progressive periodontitis A&B, Juvenile periodontitis (localized, generalized, and post-juvenile), Prepubertal periodontitis, Refractory periodontitis
- 6. Gingival diseases:**
Localized and generalized gingivitis, Papillary, marginal and diffuse gingivitis Etiology, pathogenesis, clinical signs, symptoms and management of
 - i) Plaque associated gingivitis
 - ii) Systemically aggravated gingivitis (sex hormones, drugs and systemic diseases)
 - iii) ANUG
 - iv) Desquamative gingivitis - Gingivitis associated with lichen planus, pemphigoid, pemphigus, and other vesiculobullous lesions
 - v) Allergic gingivitis
 - vi) Infective gingivitis -Herpetic, bacterial and candidial
 - vii) Pericoronitis
 - viii) Gingival enlargement (classification and differential diagnosis)



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Email:
principal@mitmidsr.edu.in
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7. Epidemiology of periodontal diseases:

- Definition of index, incidence, prevalence, epidemiology, endemic, epidemic, and pandemic
- Classification of indices (Irreversible and reversible)
- Deficiencies of earlier indices used in Periodontics
- Detailed understanding of Silness & Loe Plaque Index, Loe & Silness Gingival Index, CPITN & CPI.
- Prevalence of periodontal diseases in India and other countries.
- Public health significance (All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination)

8. Extension of inflammation from Gingiva:

- Mechanism of spread of inflammation from gingival area to deeper periodontal structures
- Factors that modify the spread

9. Pocket:

Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket.

10. Etiology:

- Dental Plaque (Biofilm)
- Definition, New concept of biofilm
- Types, composition, bacterial colonization, growth, maturation & disclosing agents
- Role of dental plaque in periodontal diseases
- Plaque microorganisms in detail and bacteria associated with periodontal diseases
- Plaque retentive factors
- Material alba
- Food debris
- Calculus
- Definition
- Types, composition, attachment, theories of formation
- Role of calculus in disease

11. Food Impaction

- Definition
- Types, Etiology
- Hirschfelds' classification
- Signs, symptoms & sequelae of treatment

12. Trauma from occlusion



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Email:
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midsr.latur@gmail.com
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- Definition, Types
- Histopathological changes
- Role in periodontal disease
- Measures of management in brief

13. Habits

- Their periodontal significance
- Bruxism & parafunctional habits, tongue thrusting, lip biting, occupational habits

14. IATROGENIC FACTORS

15. Risk factors Definition: Risk factors for periodontal diseases I

16. Host response: Mechanism of initiation and progression of periodontal diseases

- Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief
- Stages in gingivitis -Initial, early, established & advanced
- Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis

17. Periodontitis:

- Etiology, histopathology, clinical signs & symptoms, diagnosis and treatment of adult periodontitis
- Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment
- Furcation involvement, Glickmans' classification, prognosis and management
- Rapidly progressive periodontitis
- Juvenile periodontitis: Localized and generalized
- Post-juvenile periodontitis
- Periodontitis associated with systemic diseases
- Refractory periodontitis

18. Diagnosis:

- Routine procedures, methods of probing, types of probes, (According to case history)
- Halitosis: Etiology and treatment. Mention advanced diagnostic aids and their role in brief.

20. Prognosis:

- Definition, types, purpose and factors to be taken into consideration

21. Treatment plan: Factors to be considered

22. Periodontal therapy

A. General principles of periodontal therapy. Phase I, II, III, IV therapy. Definition of periodontal regeneration, repair, new attachment and reattachment.

B. Plaque control

- Mechanical tooth brushes, interdental cleaning aids, dentifrices



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ii. Chemical; classification and mechanism of action of each & pocket irrigation

23. Pocket eradication Procedures:

- Scaling and root planing
- Indications
- Aims & objectives
- Healing following root planning
- Hand instruments, sonic, ultrasonic & piezo-electric scalers
- Curettage & present concepts
- Definition
- Indications
- Aims & objectives
- Procedures & healing response
- Flap surgery
- Definition
- Types of flaps, Design of flaps, papilla preservation
- Indications & contraindications
- Armamentarium
- Surgical procedure & healing response

24. Osseous Surgery Osseous defects in periodontal disease

- Definition
- Classification
- Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts)
- Healing responses
- Other regenerative procedures; root conditioning
- Guided tissue regeneration

25. Mucogingival surgery & periodontal plastic surgeries:

- Definition
- Mucogingival problems: etiology, classification of gingival recession (P.D. Miller Jr. and Sullivan and Atkins)
- Indications & objectives
- Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy Crown lengthening procedures
- Periodontal microsurgery in brief

26. Splints - Periodontal splints

- Purpose & classification
- Principles of splinting

27. Hypersensitivity Causes, Theories & management

28. Implants Definition, types, scope & biomaterials used:



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midsr.latur@gmail.com
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Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management

29. Maintenance phase (SPT)

- Aims, objectives, and principles
- Importance
- Procedures
- Maintenance of implants

30. Pharmaco-therapy - Periodontal dressings

- Antibiotics & anti-inflammatory drugs
- Local drug delivery systems

31. Periodontal management of medically compromised patients

Topics concerning periodontal management of medically compromised patients

32. Inter-disciplinary care

- Pulpo-periodontal involvement
- Routes of spread of infection
- Simons' classification
- Management

33. Systemic effects of periodontal diseases in brief

Cardiovascular diseases, Low birth weight babies etc.

34. Infection control protocol Sterilization and various aseptic procedures

35. Ethics

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227444, fax : (02382) 228063

Email:
principal@mitmidrs.edu.in
midrs.latur@gmail.com
Website: www.mitmidrs

**3. DEPARTMENT OF ORAL MEDICINE AND
RADIOLOGY**
COURSE SPECIFIC OUTCOME FOR IV BDS

1. Radiation Physics

By the end of this lecture, students shall understand about:

1. Components of X ray machine
2. Components of x ray tube
3. Power supply of x ray machine
4. Tube rating and duty cycle
5. Production of x rays
 - a. Bremsstrahlung radiation
 - b. Characteristic radiation
6. Factors controlling the X ray beam
7. Interactions of x rays with matter

2. Radiation Biology

1. Direct effect of radiations
2. Effects of radiations on intracellular structures
3. Deterministic effect
4. Stochastic effects
5. Linear energy transfer
6. Bystander effect
7. Effect of radiations on oral mucous membrane
8. Different types of Radiation caries

3. Health Physics

1. To gain the knowledge about different sources of radiation exposure
2. Risk factors
3. Doses of exposures
4. Importance of reduction of dental radiation exposure
5. Self protection, patient protection & protection of environment

4. X-Ray film, Intensifying screens and Grids

1. X ray film
2. IOPA Film
3. Bitewing Film
4. Occlusal Film
5. Screen film
6. Intensifying screens
7. Grids

5. Projection Geometry



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Tel. (02382) 228063, 227703,
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1. Bisecting angle technique
2. Reasons for images unsharpness
3. Basic Principle of projection geometry
4. Egg shell effect
5. Tube shift technique
6. Paralleling technique.
- 6. Processing X-ray Film**
 1. Know the different terminologies commonly used in radiology
 2. Formation of visible image from invisible latent image
 3. Composition of processing solutions
 4. Complete procedure of processing
 5. Produce good quality diagnostic image
- 7. Intraoral Radiographic Examination**
 1. . General Considerations
 2. General steps for making an exposure
 3. Paralleling Technique
 4. Bisecting Angle Technique
 5. Bitewing Examinations
 6. Occlusal Radiograph
- 8. Normal Radiographic Anatomy**
 1. Introduction
 2. Difference in radio-opaque structure and radiolucent structure.
 3. Lamina dura
 4. Radiopaque structure in maxilla and mandible
 5. Radiolucent structure in maxilla and mandible
- 9. Principles of Radiographic Interpretation**
 1. Learn about the interpretation
 2. Significance of correct interpretation
 3. Use of proper viewing tools and conditions
 4. Focus on the lesion number, size, shape , site and effect on associated structures
 5. correct diagnosis
- 10. Dental Caries**
 1. Introduction
 2. Use of intraoral radiographs
 3. Radiographic examination to detect caries
 4. Digital image receptors for a bitewing examination
 5. R/G detection of lesions
 6. Occlusal surface caries
 7. Mach band

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Tel. (02382) 228063, 227703,
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8. Buccal and lingual caries
9. Root surface caries
10. Caries associated with dental restorations
11. Radiation caries
12. Alternative diagnostic tools
- 11. Periodontal Diseases**
 1. Introduction
 2. R/G assessment of periodontal conditions
 3. Limitations of radiographs
 4. Special considerations and techniques
 5. Normal anatomy
 6. General R/G features of periodontal disease
 7. Dental conditions associated with periodontal diseases
 8. Occlusal trauma
- 12. Diseases of Tongue**
 1. Learn about the facts and function of tongue
 2. Development of tongue
 3. Developmental disturbances of tongue
 4. Effects of system disease of tongue
- 13. RBC**
 1. General considerations of blood
 2. Variations of RBC
 3. Definition of Anaemia and its types
 4. Clinical features
 5. Investigations
 6. Dental considerations
- 14. WBC**
 1. General Considerations
 2. Neutropenia
 3. Agranulocytosis
 4. Cyclic Neutropenia
 5. Chediak-Higashi Syndrome
 6. Leukemia
- 15. Platelets**
 1. General Considerations
 2. Hemostasis
 3. Bleeding disorders:
 4. Hemophilia
 5. Non Thrombocytopenic Purpuras


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principal@mitmidsr.edu.in
midsr.latur@gmail.com
Website: www.mitmidsr

6. Von Willebrand disease

16. Image Characteristics

At the end students will be able to –

1. Discuss projection geometry
2. Different image characteristics
3. Factor affecting image characteristics
4. Ideal radiographs

17. Faulty Radiographs

Classification of Faulty Radiograph

Causes of Faulty Radiographs

1. Projection Errors
2. Exposure Errors and Processing Errors
3. Miscellaneous Errors
4. Automatic Processing Errors

18. Radiographic Quality Assurance & Infection Control

1. Radiographic Exposures and Technique
2. Film-Based Radiography
3. Digital Radiography
4. Cone Beam Computed Tomography

19. Stomatitis

At the end students will be able to :

1. Define stomatitis
2. Describe causes of Stomatitis
3. Enlist Signs and symptoms of Stomatitis
4. Discuss Types of Stomatitis
5. Discuss Management of Stomatitis

20. Inflammatory lesions of the jaws

1. Introduction
2. General radiographic features
3. Periapical inflammatory lesions
4. Pericoronitis
5. Osteomyelitis
6. Osteoradionecrosis

21. Dental Anomalies

1. Developmental abnormalities
2. Regional odontodysplasia
3. Dentinogenesis imperfecta
4. Amelogenesis imperfecta
5. Pulp stone

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principal@mitmidr.edu.in
midr.latur@gmail.com
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6. Fusion
7. Gemination

22. Cyst of Jaws

At the end students will be able to :

1. Define the cyst
2. Discuss Types of cyst
3. Classify of jaw cyst
4. Diagnose of commonly occurring cyst
5. Management of commonly occurring cyst

23. Extra-oral Radiography

1. Different Extraoral Radiographs, viz
 - Lateral cephalometric projection
 - Submentovertex (base) projection
 - Waters projection
 - Posteroanterior cephalometric projection
 - Reverse-Towne projection
 - Mandibular oblique lateral projection\
 - Mandibular body projection
 - Mandibular ramus projection
2. Placement of image receptor
3. Position of central x ray beam
4. Resultant image

24. Diseases of bone Manifested in Jaws

1. Classification of fibro osseous diseases
2. Clinical, radiographic features of fibrous dysplasia.
3. Differential diagnosis of fibrous dysplasia.
4. Radiographic diagnosis of periapical cemental dysplasia.
5. Langerhans cell histiocytosis
6. Paget's disease
7. Central giant cell granuloma
8. Cherubism

25. Nerves and Muscles

1. Discuss basic anatomy of nerves and muscles
2. Discuss basic physiology of nerves and muscles
3. Discuss the correlation between the neuromuscular actions
4. Different diseases caused due to damage to nerve and muscle
5. Management of disease of nerve and muscle

26. Salivary Gland Dieases

1. Developmental abnormalities



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2. Inflammatory and reactive lesions
3. Viral diseases
4. Systemic conditions with salivary gland involvement
5. Medication induced salivary dysfunction
6. Immune conditions
7. Granulomatous conditions
8. Sialorrhea
9. Salivary gland tumors
10. Evaluation of dry mouth
11. Treatment of xerostomia

27. Salivary Gland Radiology

1. Salivary glands imaging classification
2. Plain-film radiography
3. Sialography
4. Ultrasonography
5. Scintigraphy (Radionuclide imaging)
6. Computed tomography (CT)
7. Magnetic resonance imaging (MRI)

28. Therapeutics in Dentistry

At the end students will able to :

1. Remember the terms
2. Details about antibiotics
3. Details about antifungal
4. Details about antiviral

29. TMJ Disorders

1. Classification of DISEASES OF TMJ
2. Soft Tissue Abnormalities
3. Articular disk disorders
4. Anterior disc displacement with reduction
5. Anterior disc displacement without reduction.
6. Posterior disc displacement
7. Myofascial pain of masticatory muscles

30. Diagnostic Imaging of TMJ

1. Clinical features of TMJ Disorder
2. Anatomy of interarticular disk
3. TMJ bony relationships
4. Diagnostic imaging of the TMJ
5. Hard tissue imaging
6. Soft tissue imaging

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7. Radiographic abnormalities of the TMJ
 - Developmental abnormalities
 - Soft tissue abnormalities
 - Clinical and Radiographic features of TMJ Abnormalities and pathologies

31. Paranasal Sinosis

1. Types of paranasal sinuses
2. Development of Paranasal sinuses
3. Changes according to age
4. Functional Importance
5. Clinical Consideration

32. Soft Tissue Classification

1. Introduction
2. Definition and terminologies
3. Theories of calcification.
4. Classification of soft tissue calcification.
5. Dystrophic calcification
6. Metastatic calcification
7. Idiopathic calcification
8. Conclusion

33. Pericoronal Radiolucency

1. Differential diagnosis with pricoronal radiolucencies
2. Differentiation between periapical and pericoronal radiolucencies
3. Radiographic features for early diagnosis
4. Treatment and management of pericoronal radiolucencies

34. Pigmentation

1. Brown melanotic lesions
2. Melanosis associated with systemic or gentic disease
3. Blue/purple vascular lesions
4. Exogenous pigmentation
5. Depigmentation

35. OPG

1. Introduction
2. Terminologies
3. History
4. Principles & technique
5. Advantages & Disadvantages
6. Indications & contraindications
7. Errors
8. Recent advances

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36. Orofacial Pain

1. Introduction
2. Definition of pain
3. Theories and types of pain
4. Classification of orofacial pain
5. Trigeminal neuralgia
6. Classification of headache
7. SUNCT
8. Migraine
9. Differential diagnosis of acute headache in adult

37. Red & White Lesions

1. Classification of red and white lesions
2. Normal oral variants
3. Red lesions of oral mucosa
4. Candidiasis
5. Oral submucous fibrosis
6. Leucoplakia
7. Oral lichen planus

38. Cervical Lymphadenopathy

1. Introduction
2. Pathophysiology
3. The Lymph
4. Lymphatic organs
5. History and examination

39. Systemic Diseases manifested in jaw

1. General features
2. Clinical, General radiological features, R/G features of jaws and R/G features of teeth & surrounding structures in
 - a. Endocrine diseases
 - b. Metabolic bone diseases
 - c. Other systemic disease

40. HIV

1. What is AIDS
2. Classification of HIV Virus
3. Oral Manifestations of HIV Infection
4. Classification of Oral Lesions in HIV
5. Lab Diagnosis of HIV Infection
6. Use of Antiretroviral Therapy

41. Oral Cancer

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Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
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1. Introduction
 2. Epidemiology
 3. Etiology
 4. Pathogenesis
 5. Mechanisms
 6. Associated Risk Factors
 7. Clinical Features
 8. Staging And Grading of Oral Cancer
- 42. Benign Tumor of Jaw.**
1. Classification
 2. Ameloblastoma
 3. Calcifying odontogenic epithelial tumor
 4. Adenomatoid odontogenic tumor
 5. Odontoma
- 43. Benign Tumor of the Oral Cavity**
1. Introduction
 2. Classification
 3. Benign tumors of epithelial origin
 4. Benign tumors of connective tissue origin
- 44. Vesiculobullous Lesion**
1. Introduction
 2. Definition
 3. Classification of ulcer
 4. Examination of ulcer
 5. Ulcers due to trauma
 6. Ulcers due to infection
 7. Ulcers of unknown etiology
 8. Ulcers due to systemic disorders
 9. Neoplastic ulcers
- 45. Pericoronal Radioopacities**
1. Discuss terms commonly used in radiology
 2. Clinical, Radiographic features of Pericoronal Radioopacities
 3. Management of Pericoronal Radioopacities
 4. Differential diagnosis of Pericoronal Radioopacities
- 46. Malignant Diseases of Jaw**
1. Mucoepidermoid Carcinoma.
 2. Squamous Cell Carcinoma
 3. Adenoid Cystic Carcinoma
 4. Non-Hodgkin's Lymphoma



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5. Multiple Myeloma
6. Ewing Sarcoma
47. CVS
 1. Classification of Physical status
 2. Preoperative Investigations
 3. Classification of cardiac diseases
 4. Ischemic heart disease
 5. Myocardial Infarction
 6. Clinical applications
48. Respiratory Diseases
 1. Discuss Discuss Upper and lower respiratory tract diseases
 2. Bacteria and viruses causing respiratory diseases
 3. Manage oral manifestations of respiratory disease
 4. Prevent spread of respiratory diseases
49. Dosimetry
 1. What are the different types of radiations.
 2. What is EXPOSURE
 3. What is the unit of Absorbed dose (D)
 4. Units of radiation measurement
 5. What are the TLD batches
50. Digital Imaging
 1. Analog versus digital
 2. Analog to digital conversion
 3. Digital image receptors
 - a. Solid-state technology
 - b. Photostimulable phosphor technology
 4. Digital detector characteristics
 5. Digital image viewing
51. Specialized imaging
 1. Tomography
 2. Computed Tomography Scan
 3. Cone Beam Computed Tomography
 4. Magnetic Resonance Imaging
 5. Radioisotope Imaging
 6. Ultrasound
 7. Scintigraphy
52. Diabetes Mellites
 1. Classification and types of diabetes mellitus
 2. Investigation and normal range of sugar level

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3. Oral manifestations of diabetes mellitus
 4. Effect of diabetes mellites on overall health
 5. Dental management of diabetes mellitus
- 53. Gastro Intestinal diseases.**
1. Functioning of GI System
 2. Parts of GI tract
 3. Diseases of GI tract
 4. Management of Diseases of GI tract
 5. Oral manifestations of Diseases of GI tract
 6. Dental consideration of Diseases of GI tract
- 54. Renal Diseases.**
1. Role and functions of kidneys
 2. Classification of renal diseases
 3. Oral manifestations of renal diseases
 4. Dental management of renal diseases and renal transplant patients
- 55. Neuromuscular Diseases.**
1. Significance of Neuromuscular system
 2. Effect of neuromuscular disorders in oral cavity
 3. Management of neuromuscular disorders
 4. Dental consideration of neuromuscular disorders
- 56. Radiotherapy & Chemotherapy.**
1. Need of chemotherapy And Radiotherapy
 2. Chemotherapeutic agents and doses
 3. Classification of chemotherapeutic agents
 4. Different modalities and doses of Radiotherapy
 5. Side effects of chemotherapy and Radiotherapy
 6. Dental management of the patients undergoing chemotherapy & Radiotherapy
 7. Oral care guidance of patients undergoing chemotherapy & Radiotherapy
- 57. Occupational Hazards**
1. Gain the knowledge about hazards
 2. Different types of hazards
 3. Awareness about the professional hazards in dental practice
 4. Precautions to be taken to avoid the hazards
 5. Protection of self and also working assistant
- 58. Forensic Odontology**
1. What is forensic odontology.
 2. Identification of individual by different methods
 3. Palatal rugae in identification
 4. Determination of dental age & gender.



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midsr.latur@gmail.com
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5. Demirjian's method.

6. Bite Marks

7. Cheiloscopy

59. Developmental Disturbances of the face & Jaws

1. Learn the process of development of face and jaw
2. Disturbances happening in development of face and jaw
3. Management of Disturbances in development of face and jaw
4. Syndromes associated with the developmental disturbances of face and jaw
5. Dental management of the developmental disturbances of face and jaw

60. Immunological Disorder

1. Introduction
2. Typical Features Of Autoimmune Diseases
3. Classification
4. Recurrent Aphthous Stomatitis
5. Bechet's Syndrome
6. Reiter's Syndrome
7. Wegener's Granulomatosis
8. Lichen Planus
9. Pemphigus
10. Cicatricial Pemphigoid
11. Bullous Pemphigoid
12. Dermatitis Herpetiformis
13. Systemic Lupus Erythematosus
14. Discoid Lupus Erythematosus
15. Systemic Sclerosis
16. Sjogren's Syndrome
17. Psoriasis
18. Sarcoidosis

61. Dermatological Disorders

At the end students should be able to:

1. Discuss commonly seen dermatological diseases affecting oral mucosa
2. Discuss Etiology of dermatological diseases
3. Manage oral manifestations of dermatological diseases
4. Various treatment modalities

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**4. DEPARTMENT OF ORAL & MAXILLOFACIAL
SURGERY**
COURSE OUTCOME FOR IV BDS

| SR No. | Topic | Learning objectives (Student should know) |
|--------|--|--|
| 1. | Introduction to oral and maxillofacial surgery | Students should know 1.definition 2.scope 3.multidisciplinary team approach |
| 2. | Art of diagnosis | 1.history taking |
| 3. | Diagnostic imaging | 1.ALARA principle 2.plain conventional radiography 3.MRI 4.USG 5.CT scan |
| 4. | Management of medically compromised patients in oral surgery | 1.classification of physical status 2.management of systemic diseases |
| 5. | Armamentarium used in oral and maxillofacial surgery | 1.various instruments used in major and minor surgical procedures 2.surgical diathermy 3.cryosurgery |
| 6. | Suturing material and techniques | 1.suture materials 2.principle of suture material selection 3.suturing techniques |
| 7. | Asepsis and sterilization | 1.definition 2.cleansing of instruments 3.methods of sterilization |
| 8. | Infection control | 1.definition 2.routes of transmission |
| 9. | Antimicrobial therapy | Students should know 1.classification 2.mechanism of actions |
| 10. | Minor oral surgical procedures | 1.principles of oral surgery 2.surgical management of impacted teeth |
| 11. | Introduction to general anesthesia and sedation | 1.problems of dental anesthesia |
| 12. | Pre-anesthetic evaluation | 1.purpose of preoperative evaluation |
| 13. | Preoperative preparation and premedication | 1.Basic plans of preoperative preparations |
| 14. | Anesthetic equipments | 1.anesthesia and resuscitation equipments |



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| 15. | Pharmacology of commonly used anesthetic drugs | 1.IV induction agents 2.inhalational agents 3.muscle relaxants |
| 16. | Sedation techniques for dentistry | 1.definition 2.sedative techniques |
| 17. | Short anesthesia in a dental chair | 1.definiton 2.indications 3.maintenance of anesthesia |
| 18. | Tracheal intubation for a patient undergoing oral and maxillofacial surgery | 1.indications 2.complications during intubation |
| 19. | Complication of general anesthesia | 1.anesthetic complications |
| 20. | Cardiopulmonary resuscitation | 1.cardiac arrest 2.CPR technique |
| 21. | Temperomandibular joint: afflictions and management | Students should know 1.TMJ anatomy 2.TMJ disorders 3. surgical approach to TMJ |
| 22. | Amkylosis of TMJ and its management | 1.classification of ankylosis 2.etiopathology 3.clinical manifestation 4.management |
| 23. | Myofacial pain dysfunction syndrome | 1.etiology 2.symptoms 3.treatment objectives |
| 24. | Orthognathic surgery: diagnosis and treatment planning | 1.types of skeletal deformities 2.cephalometric planner |
| 25. | Presurgical orthodontic phase | 1.meticulous presurgical orthodontics 2.post-surgical orthodontics |
| 26. | Orthognathic surgery: osteotomy procedures | 1.osteotomy procedures 2.total maxillary surgery |
| 27. | Basic principles for management of maxillofacial injuries | 1.general care of injured patient 2.softtissue injuries |
| 28. | Injuries of maxillofacial skeleton | 1.etiology 2.local clinical examination 3.dental wiring techniques 4.methods of fixation |
| 29. | Fractures of middle third of facial skeleton | 1.anatomy 2.classification 3.enophthalmos |
| 30. | Principles of treatment of midfacial fractures | 1.methods of reduction 2.treatment of fractures of zygomatic bones 3.fractures of nasal bone |
| 31. | Applied surgical anatomy of | 1.anatomy of mandible |

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| | mandible and classification of mandibular fractures | 2.mandibular fractures |
| 32. | Management of mandibular fractures | 1.mandibular fracture in children 2.mandibular fracture in adults 3.bone plating |
| 33. | Fractures of condylar process and its management | 1.classification 2.diagnostic findings 3.treatment |
| 34. | Preprosthetic surgery | 1.alveolar ridge correction 2.alveolar ridge extension 3.alveolar ridge augmentation |
| 35. | Cysts of jaws and oral/facial soft tissue | 1.classification 2.treatment modalities |
| 36. | Benign tumours of jaw bones | 1.odontogenic tumours 2.non-odontogenic tumours 3.management |
| 37. | Diseases of salivary gland | 1.classification 2.salivary gland dysfunction 3.cysts and tumours 4.surgical management |
| 38. | Cleft lip and cleft palate management | 1.etiology 2.classification 3.magaement |
| 39. | Maxillary sinus and its implications | 1.anatomy 2.clinical examination 3.infections 4.oroantral communication and fistula |
| 40. | Orofacial and neck infections and their management | 1.etiology 2.spread of orofacial infections 3.patient evaluation 4.potential spaces and classification 5.life threatening complications |
| 41. | Osteomyelitis and osteoradionecrosis of jaw bones | 1.definition 2.etiology 3.classification 4.management |
| 42. | Trigeminal nerve | Function, course and division |
| 43. | Orofacial region pain | 1.definition 2.classification |
| 44. | Trigeminal neuralgia and its management | Definition, etiology, management |
| 45. | Sensory disturbances of face and jaws | 1.classification of mechanical nerve injuries |
| 46. | Facial nerve and motor disturbances of face and jaw | 1.facial nerve anatomy 2.motor disturbances of face and jaws |
| 47. | Oral cancer | 1.anatomical subsites of cancer in oral cavity |



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| | | 2.etiology 3.diagnosis and staging 4.management of neck lymph nodes 5.classification of neck dissection |
| 48. | Dental implants | 1.implant material 2.classification 3.parts 4.indications and contraindications 5.complications |
| 49. | Hemorrhage and shock: its management in oral surgery | 1.hemorrhage 2.shock |


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5. DEPARTMENT OF PROSTHODONTICS
COURSE SPECIFIC OUTCOME FOR II BDS

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| <u>Pre- clinical Prosthodontics:</u> | <ul style="list-style-type: none"> Dental students with good knowledge of landmarks in edentulous patients would be able to do all the laboratory procedures in order to fabricate complete denture. |
| <u>Dental Material:</u> | <ul style="list-style-type: none"> To understand the evolution and development of science of dental material To explain purpose of course in dental materials to personnel concerned with the profession of the dentistry Knowledge of physical and chemical properties Knowledge of biomechanical requirement of particular restorative procedure An intelligent compromise of the conflicting as well as co-coordinating factors into the desired Ernest Laying down standards or specification of various materials to guide to manufactures as well as to help professionals Search for newer and better materials which may answer our requirements with greater satisfaction. To understand and evaluate the claims made by manufactures of dental materials. |

COURSE SPECIFIC OUTCOME FOR IV BDS

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| Prosthodontics Crown and Bridge | Objectives : <ul style="list-style-type: none"> Dental graduate with experience of patients prosthetic needs fabrication of all Prosthodontic mode of treatment. Dental graduate who is able to diagnose, inspire and treat patients with complete and partial dentures who are fully and partially edentulous Dental graduate who is qualified enough to recognize and refer cases needing specialist prosthodontic care for further follow-up. |
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6. DEPARTMENT OF CONSERVATIVE DENTISTRY
AND ENDODONTICS

COURSE SPECIFIC OUTCOME FOR IV BDS

| Topic | Outcomes | Learning objectives |
|---|--|---|
| 1. Introduction to conservative Dentistry | A. Definition of Conservative Dentistry B. Aims C. Objectives | a) Definition b) Aims, c) Objectives d) Scope e) Future of Conservative Dentistry |
| 2. Nomenclature of Dentition | Tooth numbering systems | Tooth numbering systems A.D.A. B.Zsigmondy Palmer C.F.D.I. systems. |
| 3. Principles Of Cavity Preparation | A. Steps in cavity preparations B. Classification according to GV Black C. What are line angles and point angles in specific cavity design | a) Steps and nomenclature of cavity preparation b) Classification of cavities c) Nomenclature of surfaces angles of cavities |
| 4. Dental Caries | A. Introduction B. Definition C. Classifications D. Diagnosis of caries | a) Aetiology b) Classification c) Clinical features d) Morphological features e) Clinical diagnosis f) Sequel of dental caries |
| 5. Treatment Planning for Operative Dentistry | A. Clinical and Radiographic Examinations B. Tooth vitality testing C. Diagnosis and treatment plans | a) Detailed clinical examination b) Radiographic examination c) Tooth vitality tests d) Diagnosis and treatment planning e) Preparation of the case sheet |
| 6. Gnathological Concepts Of Restoration | A. Definition of Occlusion B. Classifications C. Various Mandibular Movements D. Occlusal Rehabilitation | a) Physiology of occlusion b) normal occlusion c) Ideal occlusion d) Mandibular movements e) Occlusal analysis f) Occlusal rehabilitation and restoration. |
| 7. Armamentarium For Cavity | A. Introduction B. Classification C. Design formula | a) General classification of operative instruments b) Hand cutting instruments |

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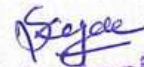


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| Preparation | D. Current concepts E. Sterilisation and Disinfection of instruments | c) Design formula and sharpening of instruments d) Rotary cutting instruments dental bur e) Mechanism of cutting f) Evaluation of hand piece and speed g) Current concepts of rotary cutting procedures h) Sterilisation and maintenance of instruments i) Basic instrument tray set up |
| 8. Control of Operating Filed | A. Importance of moisture control during operative procedure B. Parts of rubber dam C. Colour coding of rubber dam D. Drugs used to moisture control | a) Light source b) Sterilisation c) Field of operation d) Control of moisture e) Rubber dam in detail f) Cotton rolls g) Anti sialagogues. |
| 9. Amalgam Restoration | A. Definition of silver amalgam alloy B. History C. Classification D. Cavity preparation E. Indications and contraindications | a) Indication b) Contraindication c) Physical and mechanical properties d) clinical behaviour e) Cavity preparation for Class I, II, V and III Step wise procedure for cavity preparation and restoration. f) Failure of amalgam restoration |
| 10. Pulp Protection | A. Various pulp capping agents B. Classification and general properties | a) Liners b) Varnishes c) Bases d) Zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass ionomer cements |
| 11. Anterior Restorations | A. Case and Material selection B. Various cements available and their classification C. Bevels and its types D. Final finishing and polishing of restoration | a) Selection of cases b) Selection of material c) Step wise procedures for using restorations d) Silicate cements e) glass ionomers f) composites, including sandwich restorations g) Bevels of the same with a note on status of the dentine bonding agents. |


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| 12. Direct Filling Gold Restorations | A. Definition B. Classification C. History D. Cavity preparation and restoration | a) Types of direct filling gold b) Indications and limitations of cohesive gold c) Annealing of gold foil d) Cavity preparation and condensation of gold foils |
| 13. Preventive Measures In Restorative Practice | A. Plaque control measures B. Minimal invasive dentistry C. Various agents used in preventive Dentistry D. Matrices and wedging | a) Plaque Control b) Pit and fissure sealants c) Dietary measures d) Restorative procedure and periodontal health e) Contact and contour of teeth f) Restorations g) Matrices h) Tooth separation and wedges |
| 14. Temporisation or Interim Restoration | A. Introduction B. Classification C. Materials used D. Fabrication | a) Introduction b) Definition c) Materials and classification |
| 15. Pin Amalgam Restoration | A. Introduction B. Types of pins C. Classification D. Indications and Contraindications | a) Indication b) ContraIndication c) Advantages d) Disadvantages of each types of pins e) methods of placement f) Use of auto matrix g) Failure of pin amalgam restoration. |
| 16. Management Of Deep Carious Lesions | A. Introduction B. Materials used C. Techniques of restoration | Indirect And Direct Pulp Capping |
| 17. Non Carious Destruction's | Types of non carious lesions Materials used for restoration | Tooth Structures Diagnosis and Clinical Management |
| 18. Hyper Sensitive Dentine And Its Management. | I. Definition II. Introduction III. Etiology IV. Agents used for management V. Preventive measure | a) Introduction b) Etiology c) Agents used for management |
| 19. Cast Restorations | A. Introduction B. History C. Materials used D. Classification E. Methods of fabrication | d) Indications e) Contraindications f) Advantages and disadvantages g) Materials used for same h) Class II and Class I cavity preparation |



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| | | for inlays fabrication of wax pattern i) Spurring inverting and casting procedures & casting defects |
| 20. Die Materials And Preparation Of Dies | A. Introduction B. Definition C. Classification D. What are the materials used for die fabrication | a. Introduction b. Classification c. Materials used d. Fabrication of dies |
| 21. Gingival Tissue Management | A. Methods of gingival retraction B. Agents used C. Indications D. Importance of biological width | a) Introduction b) Methods of gingival retraction c) Mechanical d) Chemical e) Chemomechanical f) Biological width g) Importance in restorative dentistry |
| 22. Recent Cavity Modification Amalgam Restoration | Conventional versus modifications in cavity preparation designs | a. Conventional cavity preparation designs b. Modifications in cavity preparation designs |
| 23. Differences between Amalgam And Inlay Cavity preparatio | Amalgam versus inlay cavity preparation | a) Principles for amalgam cavity preparation b) Principle for inlay cavity preparation |
| 24. Control Of Pain During Operative Procedures | A. Introduction B. Definition and etiology of pain C. Methods of pain control D. Latest advances E. Conclusion | a) Premedication b) Analgesics c) Antibiotics d) Anti-anxiety agents e) Introduction f) Definition and etiology of pain g) Methods of pain control h) Latest advances i) Conclusion |
| 25. Emergency endodontic procedures | A. Introduction B. Classification C. Etiology D. Management | a) Introduction b) Classification according to various authors c) etiopathogenesis d) Management |
| 26. Pulpal diseases | A. Classification B. Etiopathogenesis | a. Causes b. Types c. treatment |
| 27. Periapical diseases | A. Classification B. etiopathogenesis | a. Acute periapical abscess b. Acute periodontal abscess |



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| | | <ul style="list-style-type: none"> c. Phoeix abscess d. Chronic alveolar abscess e. Granuloma, cysts f. Condensing osteits g. External resorption |
| 28.Vital pulp therapy | <ul style="list-style-type: none"> A. Indirect pulp capping B. Direct pulp capping C. Pulpotomy D. Apexification | <ul style="list-style-type: none"> a) Indirect and direct pulp capping b) Pulpotomy c) Different types and medicaments used. |
| 29.Apexogenesis and apexification | <ul style="list-style-type: none"> A. Apexogenesis B. Formation of pulp in young patient | <ul style="list-style-type: none"> a. Apexogenesis b. Apexification |
| 30.Rationale of endodontic treatment | <ul style="list-style-type: none"> I. case selection II. indication and contraindications | <ul style="list-style-type: none"> a) case selection b) indication and contraindications for root canal treatments |
| 31.Principles of root canal treatment | <ul style="list-style-type: none"> A. Root canal instruments B. Hand instruments C. Power driven instruments D. Standardisation color coding E. Principle of using endodontic instruments | <ul style="list-style-type: none"> a) Mouth preparation b) Root canal instruments c) Hand instruments d) Power driven instruments e) Standardisation color coding f) Principle of using endodontic instruments g) Sterilisation of root canal instruments and materials rubber dam application. |
| 32. Anatomy of the pulp cavity | <ul style="list-style-type: none"> A. Root canals B. Anomalies of pulp cavities C. Access cavity preparation of anterior and premolar teeth | <ul style="list-style-type: none"> a. Root canals b. Apical foramen c. Anomalies of pulp cavities d. Access cavity preparation of anterior and premolar teeth |
| 33.Preparation of root canal space | <ul style="list-style-type: none"> A. Principles of canal instrumentation B. Steps in BMP C. Straight line access | <ul style="list-style-type: none"> a) Determination of working length b) Cleaning and shaping of root canals c) Irrigating solution chemical aids to instrumentation |

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| 34. Disinfection of root canal space | A. Classification of irrigants B. Sodium hypochloride C. CHX irrigant solution | a) Intracanal medicaments b) Poly antibiotic paste c) Grossman's paste d) Mummifying agents. e) Outline of root canal treatment f) Bacteriological examinations g) Culture method |
| 35. Problems during cleaning and shaping of root canal spaces | A. Ledge formation B. Apical transportation C. Strip perforation | a) Perforation and its management b) Broken instruments and its management c) Management of single and double curved root canals |
| 36. Methods of cleaning and shaping | A. Hand and rotary instruments B. Apical access C. Apical patency D. Techniques of BMP | a) Step back b) Crown down c) Conventional methods |
| 37. Obturation of the root canal system | A. Definition B. History C. Technique D. Rationale E. When is the root canal ready for obturation? | a) Requirements of an ideal root canal filling material b) Obturation methods using gutta percha c) Healing after endodontic treatment d) Failures in endodontics |
| 38. Root canal sealers. | A. Definition B. Classification C. Ideal requirements D. Properties E. Recent advances | a) Ideal properties b) Classification c) Manipulation of root canal sealers |
| 39. Post endodontic restoration | A. Posts B. History of post and core restoration C. Types of posts D. Classification E. Ideal post space preparation techniques F. Core G. Core materials | Fabrication and components of post core preparation |

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Ambajogai Road
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Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
Website: www.mitmidr

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| 40. Discoloured teeth and its management | I. Introduction II. Etiopathogenesis III. Vital tooth bleaching IV. Inoffice and at home technique V. Non vital tooth bleaching VI. In office and at home | Bleaching agents Vital and non vital bleaching methods. |
| 41. Traumatized teeth classification of fractured teeth | A. Trauma B. Classification C. Management on basis of type of trauma | Management of fractured tooth and root Luxated teeth and its management |
| 42. Endodontic surgeries | I. Introduction II. Classification III. Armamentarium IV. Incision and drainage | a) Indication b) Contraindications c) Pre operative preparation d) Pre medication surgical instruments and techniques e) Apicectomy f) Retrograde filling g) Post-operative sequale h) Terphination i) Hemisection j) Radiscetomy techniques of tooth reimplantation (both intentional and accidental) k) Endodontic implants |
| 43. Emergency endodontic procedures. | A. Instrument seperation B. Perforation C. Sodium hypochloride accident | a) Pain b) Instrument seperation c) Perforation d) Sodium hypochloride accident e) Ledge and apical transportation |
| 44. Lasers in conservative endodontics | A. Introduction B. Pulp capping C. Pulpal analgesia D. disinfection of canal | a) Introduction b) Classification c) Types of laser used in particular procedure |
| 45. Dental material and basic equipment management | Adverse effects of the following materials: Dental cements, Zinc oxide eugenol cements, zinc phosphate cements, polycarboxylates, glass ionomer cements, silicate cement, calcium hydroxides, varnishes. | a) Evaluation b) Clinical application c) Adverse effects of the following materials: Dental cements, Zinc oxide eugenol cements, zinc phosphate cements, polycarboxylates, glass ionomer cements, silicate cement, calcium hydroxides, varnishes. |

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Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
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Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
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7. DEPARTMENT OF ORTHODONTICS AND
DENTOFACIAL ORTHOPEDICS
COURSE SPECIFIC OUTCOME FOR IV BDS

| Topic | Learning outcomes |
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| 1. INTRODUCTION TO ORTHODONTICS | <ol style="list-style-type: none">1. To Know Aims Of Orthodontic Treatment2. To Know What Is The Scope Of Orthodontics In Dentistry3. To Know What Are The Services Offered By Orthodontist4. To Know History & Evolution Of Orthodontics |
| 2. GROWTH AND DEVELOPMENT – GENERAL PRINCIPLES AND CONCEPT | <ol style="list-style-type: none">1. To know concepts of growth and development2. To understand definitions of growth and development according to various authors3. To know various methods for measurement of growth4. To know various theories about growth and development of craniofacial region |
| 3. GROWTH AND DEVELOPMENT OF CRANIAL AND FACIAL STRUCTURES | <ol style="list-style-type: none">1. To understand development of pharyngeal arches and their contribution for development of cranial & facial structures2. To know how prenatal development of face occurs3. To know how prenatal development of palate and mandible occurs & its contribution for development of face |
| 4. DEVELOPMENT OF DENTITION AND OCCLUSION | <ol style="list-style-type: none">1. To know characteristic of human dentition and occlusion2. To have knowledge about stages of developing dentition3. To understand changes in developing occlusion4. To have knowledge about various anomalies occurring while development of dentition occurs.5. To know about self correcting malocclusion. |
| 5. FUNCTIONAL DEVELOPMENT | <ol style="list-style-type: none">1. To know the important functions of oro-facial region and their role on development.2. To know about the phases of mastication and deglutition.3. To have knowledge about the trajectories of force. |
| 6. OCCLUSION – BASIC CONCEPT | <ol style="list-style-type: none">1. To Know Concepts Of Ideal Occlusion |



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| | <ol style="list-style-type: none">2. To Understand Ideal Occlusion & Their Characteristic Features3. To Know Andrews Keys For Ideal Occlusion |
| 7. CLASSIFICATION OF MALOCCLUSION | <ol style="list-style-type: none">1. To understand concept of ideal occlusion and their features2. To know different types of malocclusion3. To overview angles classification of malocclusion and their limitation in orthodontic diagnosis4. To know modification in angles classification of malocclusion5. To know premolar and canine classification for malocclusion |
| 8. ETIOLOGY OF MALOCCLUSION | <ol style="list-style-type: none">1. To Know The Reason Of Malocclusion2. To Understand The Etiological Factors For Planning Treatment Plan In Orthodontic Treatment3. To Know Various Factors Causing Malocclusion And To Predict Treatment Duration For Correction4. To Know Stability And Prognosis After Completion Of Orthodontic Treatment |
| 9. HABITS | <ol style="list-style-type: none">1. To Know Various Oral Habits And Their Contribution For Occurrence Of Malocclusion2. To Know Classification Of Oral Habits3. To Understand Thumb Sucking Habits And Their Role In Malocclusion4. To Know Diagnostic Factors For Identification Of Oral Habits5. To Know Treatment Of Various Habits In Orthodontic Practise |
| 10. EPIDEMIOLOGY OF MALOCCLUSION | <ol style="list-style-type: none">1. To know about the studies estimating the prevalence of malocclusion and orthodontic treatment needs.2. To know about the indices used for measurement of malocclusion.3. To have knowledge about PEER Assessment Rating, Handicapping Labio-Lingual Deviation index,4. Index of Complexity, Outcome and Need & Orthodontic Treatment priority index. |
| 11. ORTHODONTIC DIAGNOSIS | <ol style="list-style-type: none">1. To know about the systematic approach for Examination, Diagnosis and Treatment planning.2. To have knowledge about the essential and supplemental diagnostic aids. |



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midr.latur@gmail.com
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| | <ol style="list-style-type: none">3. To know the importance of recording case history and proper General and Clinical examination in Orthodontic Diagnosis.4. To know the importance of radiographs in orthodontic diagnosis |
| 12. CEPHALOMETRICS | <ol style="list-style-type: none">1. To know importance of cephalometry in orthodontic diagnosis2. To know various landmarks in cephalometric tracing3. To know importance of cephalometric analysis like Steiner , Down's & Tweed analysis in orthodontics |
| 13. SKELETAL MATURITY INDICATOR | <ol style="list-style-type: none">1. To know importance of skeletal maturity in orthodontic treatment planning2. To understand various methods of skeletal maturity assessment3. To know difference in stages of skeletal maturity and treatment modality |
| 14. MODEL ANALYSIS | <ol style="list-style-type: none">1. To know importance of study model in orthodontics2. To understand various analysis for mixed dentition and permanent dentition3. To know how model analysis solves problem while treatment planning4. To understand pros and cons of model analysis in orthodontics |
| 15. BIOLOGY OF TOOTH MOVEMENT | <ol style="list-style-type: none">1. To understand periodontium and its structural component2. To know types of tooth movement3. To understand phases of tooth movement4. Mechanism of tooth movement – various theories of tooth movement |
| 16. MECHANICS OF TOOTH MOVEMENT | <ol style="list-style-type: none">1. To understand concept of biomechanics of tooth movement such as: force, moment, centre of mass, centre of resistance.2. To know about couple, moment-force ratio in various orthodontic tooth movement3. To understand various orthodontic tooth movement |
| 17. ANCHORAGE | <ol style="list-style-type: none">1. To know basic terminologies of anchorage in orthodontics2. To know about importance of anchorage in fixed orthodontic treatment3. To know various anchorage consideration for different |



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midr.latur@gmail.com
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| | type of malocclusion |
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| 18. AGE FACTOR IN ORTHODONTICS | <ol style="list-style-type: none">1. To know the importance of Age factor in Orthodontic diagnosis and treatment planning.2. To have knowledge about Early treatment and Late treatment.3. To know the Scope for growth modification, prevention and interception. |
| 19. PREVENTIVE ORTHODONTICS | <ol style="list-style-type: none">1. To know what is preventive orthodontics2. To know various Procedures undertaken in preventive orthodontics3. To understand advantages of preventive orthodontic treatment procedures4. To know importance of preventive procedures in treatment of malocclusion |
| 20. INTERCEPTIVE ORTHODONTICS | <ol style="list-style-type: none">1. To know what is interceptive orthodontics2. To know various Procedures undertaken in interceptive orthodontics3. To understand advantages of interceptive orthodontic treatment procedures4. To know importance of interceptive procedures in treatment of malocclusion |
| 21. METHODS OF GAINING SPACE | <ol style="list-style-type: none">1. To understand importance of space gaining in treatment planning.2. To know different methods of space gaining in orthodontics. |
| 22. ARCH EXPANSION | <ol style="list-style-type: none">1. To know various methods of space gaining in orthodontic treatment2. To understand biomechanics of expansion3. To know various methods of expansion in orthodontics4. To know advantages and disadvantages of expansion in orthodontics teeth3. To know various types of extraction in orthodontic treatment planning4. To understand concept of serial extraction in orthodontics |
| 24. ORTHODONTIC APPLIANCES – GENERAL PRINCIPLES | <ol style="list-style-type: none">1. To know about the various classification of orthodontic appliances.2. To know about the difference between Removable and Fixed orthodontic appliances. |

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Latur.413531 (Maharashtra)

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midsr.latur@gmail.com
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| | <ol style="list-style-type: none">3. To have knowledge about mechanism of orthodontic appliances.4. To have Knowledge about requirements of orthodontic appliances. |
| 25. REMOVABLE APPLIANCES | <ol style="list-style-type: none">1. To know terminologies in removable orthodontic treatment2. To understand components of removable orthodontic appliances3. To know advantages and disadvantages of removable orthodontic appliance4. To know components of removable functional appliances & their components. |
| 26. FIXED APPLIANCES | <ol style="list-style-type: none">1. To understand biomechanics in fixed orthodontic treatment2. To know various types of fixed orthodontic treatment3. To understand various treatment strategy with respect to torque in fixed orthodontic treatment |
| 27. MYOFUNCTIONAL APPLIANCES | <ol style="list-style-type: none">1. To know concepts of myofunctional appliances in orthodontics2. To understand myofunctional appliance therapy in orthodontics3. To know various types of myofunctional appliances for different malocclusion4. To understand importance of myofunctional appliance therapy in growing individuals |
| 28. ORTHOPEDIC APPLIANCES | <ol style="list-style-type: none">1. To know concepts of Orthopedic appliances in orthodontics2. To understand Orthopedic appliance therapy in orthodontics3. To know various types of Orthopedic appliances for different malocclusion4. To understand importance of Orthopedic appliance therapy in growing individuals |
| 29. TREATMENT PLANNING | <ol style="list-style-type: none">1. To understand importance of diagnosis for treatment planning in orthodontics |
| 30. MANAGEMENT OF SOME COMMON MALOCCLUSIONS | <ol style="list-style-type: none">1. To know about the etiology and treatment of Midline Diastema.2. To have knowledge about causes and treatment of Spacing, crowding and rotation. |


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| 31. MANAGEMENT OF CLASS II MALOCCLUSION | <ol style="list-style-type: none">1. To understand etiological factors for class II malocclusion2. To know management of class II malocclusion3. To understand management of spacing , crossbite , openbite & deepbite in class II malocclusion . |
| 32. MANAGEMENT OF CLASS III MALOCCLUSION | <ol style="list-style-type: none">1. To understand etiological factors for class III malocclusion2. To know clinical features & diagnosis of class III malocclusion3. To know management of class III malocclusion. |
| 33. MANAGEMENT OF OPEN BITE | <ol style="list-style-type: none">1. To know types of open bite & their etiology.2. To understand concept of skeletal & dental open bite3. To know management of open bite based on etiology. |
| 34. MANAGEMENT OF CROSS BITE | <ol style="list-style-type: none">1. To know types of cross bite & their etiology.2. To understand concept of skeletal & dental cross bite3. To know management of cross bite based on etiology. |
| 35. MANAGEMENT OF DEEP BITE | <ol style="list-style-type: none">1. To know types of deep bite & their etiology.2. To understand concept of skeletal & dental deep bite3. To know management of deep bite based on etiology. |
| 36. CLEFT LIP AND PALATE | <ol style="list-style-type: none">1. To know occurrence of cleft lip & cleft palate incidence2. To understand etiology of cleft lip & cleft palate3. To know classification system for cleft lip & cleft palate4. To understand management of cleft lip & cleft palate in orthodontic practise |
| 37. SURGICAL ORTHODONTICS | <ol style="list-style-type: none">1. To know concept of surgical orthodontics in orthodontic treatment strategies2. To understand various minor and major surgical orthodontic treatment procedures3. To know indication and contraindications of surgical orthodontic cases4. To know how to diagnose surgical treatment while treatment planning |
| 38. RETENTION AND RELAPSE | <ol style="list-style-type: none">1. To Understand Concept Of Retention & Relapse In Orthodontics.2. To Know Causes Of Relapse And Various Theories Of Relapse.3. To Know Various Types Of Retainers And Their |



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| | Consideration For Different Types Of Malocclusion. 4. To know various schools of retention in orthodontics. |
| 39. LAB PROCEDURES | 1. To know various laboratory procedures in orthodontic practise 2. To know soldering , welding techniques for appliance fabrication in orthodontics 3. To understand stages of acrylisation during acrylisation of appliances 4. To know study model features required for orthodontic practise |
| 40. GENETICS IN ORTHODONTICS | 1. To know about the pattern of genetic transmission within the Dento-facial complex. 2. To know about perspective of Genetics in Orthodontics. 3. 3. To have knowledge about genetic disorders and their effect on Orthodontic treatment |
| 41. COMPUTERS IN ORTHODONTICS | 1. To know importance of digital dentistry in orthodontic practise 2. To understand various digital computer based diagnostic aid in orthodontic practise 3. To update current concepts about computerised software based treatment planning. |
| 42. ADULT ORTHODONTICS | 1. To Know the Reason for increase in Adult patients. 2. To know the indication for Adult orthodontic treatment. 3. To know about difference between adult and adolescent patient. |

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Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
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8. DEPARTMENT OF PUBLIC HEALTH DENTISTRY COURSE OUTCOME FOR IV BDS

| Topic | Outcomes | Learning objectives |
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| 1 Introduction to Public Health Dentistry | <ol style="list-style-type: none"> 1. Define Public Health and Dental public health 2. Re-state the milestones in dentistry, especially in Indian context <p>Explain the tools of dental public health</p> | <ol style="list-style-type: none"> 1. Define Public Health and Dental public health. 2. Re-state the milestones in dentistry, especially in Indian context 3. Explain the tools of dental public health 4. Determine the duties of public health dentist 5. Differentiate between private practice and public health dentistry |
| 2 Introduction to Public Health | 1. Describe the evolution and changing concepts of Public Health. | |
| 3. Dental Manpower | <p>Introduction</p> <ol style="list-style-type: none"> a. History b. Definition <ol style="list-style-type: none"> a. Give Classification b. Describe expanded duty Auxiliary. c. Define Frontier Auxiliary <ol style="list-style-type: none"> a. Describe Various Degrees of supervision -National Health Expenditure b. Describe ORAL HEALTH CARE SYSTEM IN INDIA c. Describe Manpower requirement in Indian System d. Describe Models for Assessing Dental Manpower -Governing Bodies for Dental Manpower -Dental Manpower in India -Challenges in Indian scenario | <ol style="list-style-type: none"> 1. Classification of Dental Auxiliaries <ul style="list-style-type: none"> A. Non Operating Auxiliary-dental secretary -dental mechanics. - Dental Health educator B. Operating Dental auxiliaries- -Dental nurse Dental therapist Dental Hygienist 1 Certified dental assistant 2. Preventive dental assistant 3. Dental hygienist 4. Dental hygienist with expanded duties. -FRONTIER AUXILIARIES -NEW AUXILIARY TYPES-Dental Licentiate <ul style="list-style-type: none"> <input type="checkbox"/> Dental Aide <input type="checkbox"/> Community Dental Health Coordinator (CDHC) -a. Degrees of Supervision of Auxiliaries b. ORAL HEALTH CARE SYSTEM IN INDIA c. Manpower requirement in Indian System. d. Models for Assessing Dental Manpower |
| 4. Biostatistics | <ol style="list-style-type: none"> a. Define Biostatistics b. Applications | <ol style="list-style-type: none"> A. General application of bio-statistics B. Measure of central tendency |



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| | <p>c .Data and Its ways of presentation- Common Statistical Terms d. Measures of central tendency d. what is measures of dispersion e. What is Normal Curve? Test of Significance</p> | <p>1.Mean 2.Mode 3.Median 4.Range 5.Mean Deviation 6.Standard Deviation a .Parametric test b. Non Parametric test c.Correlation d. Regression</p> |
| 5.Research Methodology | <p>a. Explain the basic principles and methods of conducting research. b. Describe how to phrase the research objectives and build a rationale for research c. Recommend appropriate study designs to match different objectives. d. Differentiate between various scales of measurement. e. Define a study population and a sample. f. Identify the inclusion/ exclusion criteria for study subjects g. Identify the ethical aspects in carrying out research and value the participation of humans.</p> | <p>1.Communicate the need for research, the benefits and risks involved with the study participants and respect their decision in the participation of research and obtain an Informed consent 2.Justify the need for sampling and describe various sampling technique Write down steps involved and basic rules to be followed in designing a questionnaire 3.Describe how to check the validity and reliability of a questionnaire and a research instrument.</p> <p>1. Differentiate between internal and external validity of a research study. 2. Describe the biases/ factors affecting the generalizability of research findings and how to control them. 3. Describe the role of biostatistics in Public Health.</p> |
| 6.Water | <p>1.Sources of Water 2.What are drinking waters quality Guidelines 3.what is hardness of water</p> | <p>1.Guidelines for water Quality 2.Acceptability Aspects Microbiological aspects Chemical Aspects Radiological aspects Purification of water a.Small scale- b. Large scale- Slow Sand filtration and What are elements c. Rapid sand Filters d .Chlorination</p> |



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| 7. Biomedical Waste Management | 1. What is Classification of waste 2. Health Care waste and steps in segregation 3. What are incinerators 4. Autoclaving -Chemical disinfection - Microwave irradiation -Encapsulation of Sharps -Inertization -Land disposal | Disinfection of wells 1. Solid waste management 2. what are solid waste disposal methods- a. What is controlled tipping b. What is composting- c. Bangalore Methods 3 types of health care waste 4. what are different methods of disposal healthcare waste. |
| 8. Health care Delivery | a. Evolution of Health system b. Primary health care - Primary health centers - Sub-centers b) Hospitals/ & health centers community health centers rural & District hospital/ health center specialist hospitals - Teaching hospitals Health Insurance scheme | a. Health care in India b. Levels c. Health administration d. Public health sector -Village health Guide -Anganwadi worker ASHA Worker function -Public private partnership e. National oral Health Policy f. Health Agencies Around the world Non Governmental organisation |
| 9. Social science and health Behavior | 1. What are social sciences 2. Structural aspects of society. 3. Functional Aspects of society 4. Health Behavior. 5. Lifestyle and health 6. Utilisation of dental Service 7. Behavior of child and theories | 1. Definitions 2. a. Social Institution b. community c. association a. Norms b. folkways c. Mores d. taboo customs and habits Etiquettes and conversion e. social values 4. Different theories of health behavior 5. Social stratification and health 6. a. felt Need b. expressed need c. Normative need 7. Psychodynamic theories Behavior learning theories |
| 10. Ethics | a. History b. what is Nuremberg code c. What is Declaration of Helsinki | a. Ethical principals b. Ethical rules for Dentist c. Code of medical ethics |
| 11. Medical | a. Doctor patients contract b. Consent | a. Types of consents b. Negligence |

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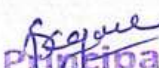


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| Jurisprudence | c Legel Avenues for aggrieved patients | c.COPRA |
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| 12. Epidemiology of Dental caries | a. Introduction b. Definition c. General background d. Epidemiological triad e. Host Factors f. Agent factors g. Environmental factors h. Classic Epidemiological studies | a. Epidemiology b. Etiologic factors c. Caries activity d. Caries risk assessment e. Cariogram f. Prevention g. Dental caries vaccine |
| 13. Epidemiology of Periodontal disease | 1. What is Gingivitis 2. periodontitis 3. Hypothesis related to periodontitis | 1. stages of gingivitis 2. Classification of periodontal disease <ul style="list-style-type: none"> • 3 Plaque and local factor model : • Explain non-specific, specific and ecological plaque hypothesis. • Define and enumerate types of dental plaque and calculus. periodontal health examination of a patient and identify the etiological factors associated |
| 14. Fluorides | 1. Introduction and historical evolution of fluorides. 2. *Fluoride in the environment 3. *Sources of fluorides 4. Metabolism of fluoride 5. *Estimation of fluoride concentration 6. *Mechanism of action of fluoride 7. *fluoride delivery methods 8. *Toxicity of fluoride 9. fluorosis 10. *Defluoridation of water | 1. -Understand knowledge of Fluoride delivery methods: systemic and topical 2. Understand and Identify various types of fluoride toxicity 3. *Nalgonda Technique 4. Controlled water fluoridation studies |
| 15. Nutrition | 1. Introduction and Classification of foods 2. *Nutrients 3. *Balanced diet 4. *Effect of nutrition on oral tissues 5. .Nutrition in the elderly 6. .Preventive & social measures | 1. List the functions of carbohydrates. () 2. Describe in detail the functions of vitamins. 3. List the diseases caused due to deficiency/ excess of various vitamins. 4. Classify minerals Enumerate the uses and diseases caused due to the deficiencies of various minerals Explain balanced diet. 5. List the pre-eruptive and post-eruptive effects of nutrition on oral tissues |
| 16 Plaque | Composition of dentifrices | 1. Preventive and social measures at |


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| control | <p>.Tooth brushing and Flossing techniques</p> <ol style="list-style-type: none"> 1. Analyze the need for plaque control in prevention of Oral diseases.(2. Differentiate between mechanical and chemical plaque control 3. Describe the various oral hygiene aids used in mechanical plaque control.(4. Classify toothbrushes. 5. Enumerate the ADA specification for toothbrushes. 6. Classify tooth brushing techniques and explain the method of brushing, indications and contraindications. 7. Enumerate factors influencing the effectiveness of chemical plaque control agents 8. Classify chemical plaque control agents and list the advantages and disadvantages of each one. 9. Describe the properties of Chlorhexidine Gluconate in chemical plaque control 10. Enumerate the components of a toothpaste and describe the role of each component in plaque control | <p>Family level, community level, national level and international level</p> <ol style="list-style-type: none"> 2. *Disclosing agents and its uses 3. *Mechanical and chemical Plaque control aids 4. *Toothbrush – types, ADA specification and techniques 5. *Composition of dentifrices and flossing. |
| 17. Pit and fissure sealants, | <ol style="list-style-type: none"> 1. Morphology of pits and fissures 2. -Types of sealants 3. -Materials used as sealants 4. -Indications and contraindications of sealants 5. -Procedure of sealant application 6. -Factors affecting sealant retention 7. -Cost effectiveness 8. -Preventive resin restorations | <ol style="list-style-type: none"> 1. understand cariostatic properties of sealants that are attributed to the physical obstruction of pits and fissure 2. understand the cost effectiveness and treatment modalities of sealants 3. Use of sealants on teeth of children at high risk for dental caries 4. -to understand modern knowledge about minimal intervention, minimal invasion and minimal cavity preparation for carious lesions |
| 18. School Dental Health Programme | <p>Aspects of school health programs</p> <ul style="list-style-type: none"> *Objectives and ideal requirements *advantages *Elements/ components | <p>Understand the importance of healthy mouth, relationship of dental health to general health and appearance of school child</p> |



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 Ambajogai Road
 Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
 227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
 Website: www.mitmidr

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| | <ul style="list-style-type: none"> *Some school oral health programs *Who global school health initiates *Incremental care *Comprehensive care | |
| 19. Practice management | <ol style="list-style-type: none"> 1. Biological Hazards 2. -Chemical Hazards 3. -Physical Hazards 4. -Psychological Hazards 5. -categories of task in relation to risk 6. -personal barrier techniques 7. -Vaccines for dental health-care workers 8. -use and care of sharp instruments 9. -sterilization and disinfection of instruments 10. -cleaning and disinfection of dental unit and environmental surfaces 11. -use and care of handpieces 12. -handling of biopsy specimens 13. -goals of practice management 14. -Dental office setting 15. -Management of the dental office 16. -Financial aspects of a dental practice 17. -Decision on the need for a mobile dental clinic 18. -Goals, objectives and target populations for mobile dental services 19. -Specifications, advantages and disadvantages of a mobile dental clinic | <ol style="list-style-type: none"> 1. Understand the key to prevent occupational exposure and identify the hazards and determine appropriate controls 2. Understand inflectional control strategies for health care delivery settings 3. Understand "universal precautions" 4. -to develop business management skills that enable dentist to enjoy good dentistry with a harmonious staff resulting in satisfied patients and a good income. 5. Understand need to provide oral health care to populations that have difficulty gaining access to the traditional dental care delivery system. |
| 20. Finance in | <ul style="list-style-type: none"> Private fee for service - Post payment plans -Private third party prepayment plans: | Understand methods to ease cost either by legislation or by development of a variety of funding approaches |



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midrs.latur@gmail.com
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| Dental care | <ol style="list-style-type: none"> 1. commercial insurance companies 2. Non- profit :Delta dental plans, Blue cross/ Blue shield 3. Prepaid group practice 4. Capitation plans <p>-Salary -Public programs: Medicare, Medicaid, National health insurance.</p> | <p>-Mechanism of payment for dental care -Financing dental health services in India</p> |
| 21 .Indices in Dentistry | <ol style="list-style-type: none"> 1. Ideal requisites of Index 2. -Criteria for selecting an index Classification of index Uses of index 3. -OHI-S index 4. -DMFT & DMFS 5. Index 6. -LOE and SILLNESS index 7. -SILLNESS and 8. LOE index 9. -CPI index 10. -Dean's Fluorosis index | <ol style="list-style-type: none"> 1. Understand Indices to quantitate clinical conditions on a graduated scale, facilitating comparison among population examined by the same criteria and methods 2. -Understand indices used for assessing oral hygiene and plaque, gingival and periodontal diseases, dental caries, dental fluorosis, malocclusion and learn proforma for recording indices 3. -Russel's index 4. -CPITN index 5. -Dental aesthetic index |
| 22. Survey Procedures in dentistry | <ol style="list-style-type: none"> 1. Types of survey 2. -Uses of survey 3. -Methods of data collection 4. -Steps in surveying 5. -WHO Oral Health Survey methods 1997 | <ul style="list-style-type: none"> • Understand monitoring trends in oral health and disease, policy development, program evaluation, assessment of dental needs and providing visibility for dental issues with the help of surveying |
| 23. Atraumatic restorative treatment, | <ol style="list-style-type: none"> 1. Principle, indications, contraindications and advantage of Atraumatic restorative treatment 2. -Essential instruments and materials (ART) 3. Procedure of ART Failed /defective restorations | <ol style="list-style-type: none"> 1. Understand ART as minimally invasive care approach in preventing dental caries and stopping its further progression. 2. Use of sealant application and as routine preventive measure for pits and fissures and educating parents on the importance of dental sealants |
| 24. Planning and evaluation, | <ol style="list-style-type: none"> 1. -Uses of planning 2. -Types of health planning 3. -Steps in planning process -Evaluation | <ol style="list-style-type: none"> 1. Understand planning, to match limited resources with many problems 2. How to eliminate wasteful expenditure. |



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 227444, fax : (02382) 228063

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principal@mitmidsr.edu.in
midsr.latur@gmail.com
 Website: www.mitmidsr

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| | | 3. -How to develop the best course of action to accomplish a defined objective |
| 25 Epidemiology and Prevention of Oral Cancer | <ol style="list-style-type: none"> 1. Explain the process of oral cancer 2. Discuss the burden of oral cancer, its prevalence and survival rates 3. Describe the role of cancer registries and discuss the role of National Cancer Registry Programme 4. Explain the risk factors for oral cancer. 5. Discuss the epidemiology of oral cancer. 6. Cite the WHO estimates for tobacco consumption and their risk of oral cancer. 7. Describe the various smoked and smokeless forms of tobacco preparations. 8. Cite examples of the various health consequences of tobacco use. Enumerate the most common clinical presentations of oral potentially malignant disorders and oral cancer. | <ol style="list-style-type: none"> 1. Categorize the TNM system of tumor staging 2. Discuss the 5As and 5Rs in tobacco cessation counselling 3. Assess the level of dependence and the need for intensive counselling in the patient 4. Analyze the use of pharmacotherapy in tobacco cessation.(5. Apply the key counselling concepts in tobacco cessation 6. Recognize the Global initiatives in the prevention of oral cancer |
| 26. Epidemiology and Prevention of Malocclusion | <ol style="list-style-type: none"> 1. explain the epidemiology of malocclusion. 2. List the unfavourable sequelae of malocclusion problems 3. Classify malocclusion. 4. Identify the category of malocclusion prevalent in a patient and develop a treatment plan during patient management 5. List the etiological factors responsible for malocclusion 6. Describe the various treatment modalities available for malocclusion. | <ol style="list-style-type: none"> 1. Define "Preventive Orthodontics" and "Interceptive Orthodontics" 2. Describe the various measures for prevention of malocclusion. 3. Describe the various procedures in Interceptive Orthodontics in a developing malocclusion. |
| 27. Occupational Hazards in Dentistry | Describe the various occupational hazards in dentistry | prevent occupational hazards in dentistry. |

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Ambajogai Road
Latur.413531 (Maharashtra)

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227444, fax : (02382) 228063

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| 28. Infection Control in Dentistry | <ol style="list-style-type: none">1. Explain the concepts of Universal and Standard Precautions in Infection Control.2. Explain the various personnel protective equipments in dentistry.3. Explain the OSHA regulations with respect to Infection control Describe the CDC guidelines for infection control in dentistry | <ol style="list-style-type: none">1. Identify the major routes of Cross-Infection and define the importance of infection control in an Oral Health Care Setting.2. Abide strictly by the infection control protocol while providing care to the patient. |
| 29. Health Economics | Types of Economic Evaluation | Explanation of various economic evaluation concepts |
| 30. Case History | <ul style="list-style-type: none">• Objectives• Components | Elicit case history, perform Clinical Examination to arrive at a diagnosis using appropriate diagnostic aids and provide comprehensive Oral health care to the patients with strict adherence to the Infection control protocol |


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Email:
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midr.latur@gmail.com
Website: www.mitmidr

**9. DEPARTMENT OF PAEDIATRIC & PREVENTIVE
DENTISTRY**

COURSE OUTCOME FOR IV BDS

| Sr. No | Topic | Learning Outcome |
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| 1 | Introduction, Definition, Scope and Practice Management and Importance of Pedodontics: | <ul style="list-style-type: none">• Overall health of the child should be of primary concern.• Prevention should be the primary objective rather than the treatment.• While selecting the treatment modality, Pedodontist should always focus on comprehensive oral health of the child.• Developing dentition in child need to be monitored by the Pedodontist constantly from the beginning.• Pedodontist should always trained psychologist and should form solid institution for child patient by instilling in him positive dental attitude.. <p>Paediatric dentistry include treatment and early diagnosis of oral diseases and condition in child and adolescent mouth including caries and periodontal abscesses, mineralisation defects, etc .</p> <p>Paediatric dentistry is an integrated science of all dental practices.</p> |
| 2 | Diagnosis In Paediatric Dentistry | <ul style="list-style-type: none">• Oral examination includes the records of history, examination of patient, provisional diagnosis, special examination, final diagnosis, and treatment plan.• History includes information about history of present illness, family history, medical history, past dental history, behavioural history etc.• Chief complaint should be in own words of patient.• History of present illness should be elaboration of chief complaint.• Oral mucosa examination is helpful for underlying systemic disease or nutritional deficiency.• Occlusion examination will help in early diagnosis of malocclusion and will help in proper treatment planning. |



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midr.latur@gmail.com
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| 3 | Paediatric Oral Pathology | <ul style="list-style-type: none">• Diagnosis in paediatric dentistry is based on pathological diagnosis which includes various pathological lesions.• There are various developmental defects related to number, shape, size, and structure of teeth. |
| 4 | Growth and Development of Orofacial Structure | <ul style="list-style-type: none">• Development orofacial structure occurs during 4th to 12th week of prenatal development, spanning the later embryonic period and early fetal period.• Structure of oral cavity derived from the first brachial arch.• By the end of 4th week of development the frontonasal, 2 maxillary, 2 mandibular processes are visible.• Mandible develops from the cartilage of 1st arch i.e. Merkel's cartilage.• Postnatal growth of maxilla is by displacement, remodelling, and growth at sutures. <p>Postnatal growth of mandible is based on displacement and Enlow's principle</p> |
| 5 | Development of Occlusion | <ul style="list-style-type: none">• Occlusion in the primary dentition plays a significant role in determining the space for and occlusion in the succeeding permanent dentition.• Periods of occlusion development is divided in developmental periods like: 1. Neonatal period (last upto 6 months after birth) 2. Primary dentition (6month to 6 years) 3. Mixed dentition (6 years to 12 years) 4. Permanent dentition.• Primate spaces present mesial to maxillary deciduous canines and distal to mandibular deciduous canine. Total physiologic space in maxillary arch is 4mm and in mandibular arch is 3mm. <p>There is andrew's six keys of occlusion for permanent dentition are molar inter-arch relationship, crown angulation, labiolingual crown inclination, absence of rotation, tight contacts, curve of spee, bolton's discrepancy</p> |
| 6 | Gingival and Periodontal Disorders in Children: | <ul style="list-style-type: none">• Plaque induced gingivitis is seen most commonly in children.• Inflammatory response of gingiva without destruction of |



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principal@mitmidrs.edu.in
midrs.latur@gmail.com
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| | | <p>surrounding tissues is called gingivitis.</p> <ul style="list-style-type: none"> • There are various systemic condition that may reduce the host response in children and adolescents thus increasing their susceptibility to periodontal bone loss and ultimately loss of teeth. Periodontal diseases can be characterised by destruction of periodontal connective tissue attachment and alveolar bone. • Various genetic disorder also involves periodontal and gingival diseases. • Plaque control record and periodontal screening and recording are various method used for assessment for gingival and periodontal diseases. |
| 7 | Diet and Nutrition | <ul style="list-style-type: none"> • Balanced diet is the one which supplies all the nutrients in the right quantity and proportion. • Carbohydrate: 55-60%, Proteins: 10-15%, Fats: 30-35%. • According to RDA levels of intake of essential nutrients are currently considered essential and which meet the physiological needs of nearly all individual. • USDA daily food guide divides commonly eaten food into five groups: 1. Vegetable-fruit, 2. Bread-cereals, 3.milk-cheese, 4.meat, poultry, fish and beans, 5. Fats, sweets, and alcohol. • First food pyramid was published in Sweden in 1974. |
| 8 | Oral Habits | <ul style="list-style-type: none"> • Habit is fixed or constant practise established by frequent repetition. • Mouth breathing, thumb sucking, tongue thrusting, bruxism, nail biting are the most common oral habit. • Various oral habits affects the normal occlusion. • Tongue thrust is the forward movement of tongue tip between teeth to meet the lower lip during deglutition and in sounds of speech. It can be habitual, anatomic, functional or physiologic. Clinical feature are open bite, cross bite, bimaxillary protrusion and incompetent lip. • Mouth breathing is habitual respiration through mouth instead of nose. It may be obstructive, habitual or anatomic. Clinical features are adenoid facies, gingivitis, and anterior maxillary caries. Treatment is lip |



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227444, fax : (02382) 228063

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midsr.latur@gmail.com
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| | | <p>exercise and oral screen. Bruxism is habitual grinding of teeth when individual is not chewing or swallowing</p> |
| 9 | Cariology | <ul style="list-style-type: none"> • Dental caries is an infectious microbiologic disease of the teeth that results in localised dissolution and destruction of calcified tissue. • Theories of caries: vital theory, chemical theory, parasitic theory, milller's chemoparasitic theory, proteolytic theory, chelation theory, sulfatase theory and complexing and phosphorylation theory. • Concept of caries was given by Keyes as an epidemiological model contains factors: host, agent and environmental influences. • There are 3 major hypothesis for eitiology of dental caries: 1. Specific plaque hypothesis, 2. Nonspecific plaque hypothesis 3. Ecological plaque hypothesis. • Window of infectivity: 1st window: 7-31 months :teeth erupt 2nd window:6-12 years: permanent teeth erupt. • Caries progression is at its peak rate at 3 years after eruption of teeth. • Demineralisation-remineralisation is caries not result of single acid attack caused by acid formed as a result of fermentation of dietary substrate by oral microflora. • Histologically, enamel caries has four zones 1. Translucent zone. 2. Dark zone, 3. Body of lesion 4. Surface intact zone. • Histologically, dentinal caries has five zones 1. Decomposed zone 2.bacterial invasion 3. Demineralisation 4. Dentinal sclerosis 5. Fatty degeneration. |
| 10 | Restorative Dentistry | <ul style="list-style-type: none"> • This best practice provides clinicians with guidance to form decisions about restorative dentistry, including when treatment is necessary and which techniques and materials are appropriate for restorative dentistry in pediatric patients. • Not every caries lesion requires restoration, and restorative treatment of caries alone does not stop the |



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| | | <p>disease process.</p> <ul style="list-style-type: none">• Restorative approaches and supporting evidence for the excavation and restoration of deep caries lesions, including complete excavation, stepwise (i.e., two-step) excavation, partial (i.e., one-step) excavation, and no removal of caries prior to restoration• GV Black in 1924 outlined the classification of cavity preparation into 5 later it was modified by Simon.• Finn classification is used in paediatric dentistry.• Mount and Hume classification exemplifies the complexity of lesion.• Principal of tooth preparation: 1. Initial tooth preparation includes; outline form, resistance form, retention form, convenience form. Whereas final tooth preparation involves; removal of remaining infected dentin and old restorative material, pulp protection, secondary resistance and retention form and finishing external walls and cleaning.• Cementation aims to bond the prosthetic restoration to the prepared enamel or enamel and dentine.• The type, shade, thickness of resin cement and the shade of the ceramic, all together, have a tangible influence on the final restoration color.• Dental luting cements can be classified according to their chemical composition and application.• Dental cement can be oil-, water-, or resin-based |
| 11 | Child Psychology | <ul style="list-style-type: none">• The attitudes and feelings of the patient toward the dentist and the dental procedures are as important to successful treatment as are the technical skills of the dentist.• The attitudes and feelings of the patient toward the dentist and the dental procedures are as important to successful treatment as are the technical skills of the dentist.• A. Psychodynamic Theory: Psychosexual Concept by Sigmund Freud in 1905 Psychosocial / Personality development Theory by Erik Erikson in 1963 Cognitive development theory by Jean Piaget in 1952 B. Behavioural Learning Theory Classical |

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Ambajogai Road
Latur.413531 (Maharashtra)

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227444, fax : (02382) 228063

Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
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| | | <p>conditioning Theory by Ivan Pavlov in 1927 Operant conditioning Theory by Skinner in 1938 Social learning Concept by Albert Bandura in 1963 Hierarchy needs theory by Abraham Maslow in 1954</p> <ul style="list-style-type: none"> • Erik Erikson has eight sequential stages of individual development that have an influence on the socio-economical, psychological and biological status of an individual throughout their lifespan. • Freud Psychosexual theory focuses on two elements of human nature such as "sex" and "aggression" • Child psychology is considered to be an important component of a pedodontist's training as it plays a major role in the clinical practice of many pediatric practitioners to handle the behaviour of pediatric patients efficiently |
| 12 | Behaviour Management | <ul style="list-style-type: none"> • Behavior guidance is a continual process from basic to advanced techniques, using non-pharmacological and pharmacological options. • The following items should be addressed before, during, and after patient treatment: informed consent, pain assessment, behavior documentation, and preventive and deferred treatment considering all behavior guidance options • Basic behaviour guidance includes communication guidance, positive pre-visit imagery, direct observation, tell-show-do, ask-tell-ask, voice control, non-verbal communication, positive reinforcement and descriptive praise, distraction, and desensitization • For anxious patients and those with special health care needs, additional behaviour guidance options include sensory adapted dental environments, animal assisted therapy, picture exchange communication systems, and nitrous oxide-oxygen inhalation. Advanced behaviour guidance includes protective stabilization, sedation, and general anesthesia • Goals of behaviour guidance are to: 1) establish communication, 2) alleviate the child's dental fear and anxiety, 3) promote patient's and parents' awareness of the need for good oral health and the process by which it is achieved, 4) promote the |

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Ambajogai Road
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227444, fax : (02382) 228063

Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
Website: www.mitmidsr

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| | | <p>child's positive attitude toward oral health care, 5) build a trusting relationship between dentist/staff and child/parent, and 6) provide quality oral health care in a comfortable, minimally restrictive, safe, and effective manner.</p> <ul style="list-style-type: none">• Tell-show-do is the technique involves verbal explanations of procedures in phrases appropriate to the developmental level of the patient (tell); demonstrations for the patient of the visual, auditory, olfactory, and tactile aspects of the procedure in a carefully defined, nonthreatening setting (show); and then, without deviating from the explanation and demonstration, completion of the procedure (do).• Ask-tell-ask is technique involves inquiring about the patient's visit and feelings toward or about any planned procedures (ask); explaining the procedures through demonstrations and non-threatening language appropriate to the cognitive level of the patient (tell); and again inquiring if the patient understands and how she feels about the impending treatment (ask).• Positive reinforcement and descriptive praise: In the process of establishing desirable patient behaviour, it is essential to give appropriate feedback. Positive reinforcement rewards desired behaviours thereby strengthening the likelihood of recurrence of those behaviours• Distraction is the technique of diverting the patient's attention from what may be perceived as an unpleasant procedure.• Desensitization to dental setting and procedures: Systematic desensitization is a psychological technique that can be applied to modify behaviours of anxious patients in the dental setting.• Sedation can be used safely and effectively with patients who are unable to cooperate due to lack of psychological or emotional maturity and/or mental, physical, or medical conditions. Background information and documentation for the use of sedation is detailed in the Guideline for Monitoring and Management of Paediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures |
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| 13 | Traumatic Injury | <ul style="list-style-type: none">• The greatest incidence of trauma to the primary teeth occurs at 2 to 3 years of age, when motor coordination is developing• The most common injuries to permanent teeth occur secondary to falls, followed by traffic accidents, violence, and sports.• Subluxation: Mobility of the tooth due to injury to the supporting structures of the tooth.• Avulsion: tooth is completely displaced out of the tooth socket• Lateral Luxation: the tooth is displaced and a neighbouring bone is fractured.• Intrusion: the tooth is pushed into the bone• Extrusion: The tooth is pushed out of the bone• Fracture of the tooth• Ellis and Davey in 1970 proposed a classification system for tooth fractures based on the extent of damage to the tooth structure.<ul style="list-style-type: none">Class 1: Simple fracture of the crown involving little or no dentinClass 2: Extensive fracture of the crown involving considerable dentin but not pulpClass 3: Extensive fracture of the crown involving considerable dentin, and exposing the dental pulpClass 4: The traumatized tooth which becomes nonvisual with or without loss of crownClass 5: Teeth lost as a traumaClass 6: Fracture of the root with or without loss of crown structureClass 7: Displacement of the tooth without fracture of crown or rootClass 8: Fracture of the crown en masse and its replacementClass 9: Traumatic Injury to primary dentition• Different types of storage media are Saline solution, Tap water, Saliva, Milk, Hank's Balanced Salt Solution, ViaSpan, Gatorade, etc.• In case of primary tooth if the tooth is displaced and |
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M. I. D. S. R. Dental College
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| | | <p>not obstructing permanent tooth then allow it to erupt on its own and if it is obstructing it is best to extract.</p> <ul style="list-style-type: none"> In case of avulsion reimplantation is contraindicated. |
| 14 | Paediatric Endodontics | <ul style="list-style-type: none"> The dental diseases affecting the pulp and periapical tissues in the primary and permanent dentitions pose treatment challenges for the endodontists because of the vast variations in these dentitions basically due to factors like longevity of primary teeth, coronal structure and root canal morphology and anatomy of the teeth which needs to be critically analysed before rendering treatment. In recent years, new materials, equipments and instruments have evolved to a great extent and simplified the endodontic treatment procedures for the clinicians. In case of incisors the pulp chamber is fan shaped when viewed from labial aspect and corresponds with shape of crown. Pulp chamber of canine is similar to deciduous incisor in many aspects except that it has a single pulp horn. <p>Pulp chamber of molars is very large extending to external walls of crown. Root canals are more irregular and complicated than in permanent molar</p> |
| 15 | Handicapped Children | <ul style="list-style-type: none"> The AAPD defines special health care needs as "any physical, developmental, mental, sensory, behavioural, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs. The condition may be congenital, developmental, or acquired through disease, trauma, or environmental cause and may impose limitations in performing daily self-maintenance activities or substantial limitations in a major life activity. Children may include those with behavioural (e.g., anxiety, attention deficit hyperactivity disorder, autism spectrum disorder), congenital (e.g., trisomy |

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| | | <p>21, congenital heart disease), developmental (e.g., cerebral palsy) or cognitive (e.g., intellectual disability) disorders, and systemic diseases (e.g., childhood cancer, sickle cell disease).</p> <ul style="list-style-type: none"> • Oral health conditions include: • build-up of calculus resulting in increased gingivitis and risk for periodontal disease. • enamel hypoplasia. • dental caries. • oral aversion and behaviour problems. • dental crowding. • malocclusion. • anomalies in tooth development, size, shape, eruption, and arch formation. • bruxism and wear facets. • fracture of teeth or trauma • The goals of care include: (1) establishing dental home at an early age, (2) obtaining thorough medical, dental, and social patient histories, (3) creating an environment conducive for the child to receive care, (4) providing comprehensive oral health education and anticipatory guidance to the child and caregiver, and (5) providing preventive and therapeutic services including behaviour guidance and a multidisciplinary approach when needed. • Medical consultation: When appropriate, the physician should be consulted regarding medications, sedation, general anesthesia, and special restrictions or preparations that may be required to ensure the safe delivery of oral health care. A multidisciplinary approach may be necessary in complex case management. The dentist and staff always should be prepared to manage a medical emergency. • According to revised guidelines by AAPD (2011): minimal use of antibiotics is indicated to avoid the risk of developing resistance due to antibiotics usage. |
| 16 | Fluorides | <ul style="list-style-type: none"> • Dental caries (cavities) continues to be the most chronic disease of childhood. Although dental caries is multifactorial in its etiology, fluoride is an important chemotherapeutic intervention to strengthen teeth and prevent disease progression. • Fluoride works to prevent dental caries through both topical and systemic mechanisms via 3 processes: inhibiting tooth demineralization, enhancing |

Principal
I. I. D. S. R. Dental College
LATUR



MAEER'S
MAHARASHTRA INSTITUTE OF DENTAL
SCISCIENCES & RESEARCH (DENTAL COLLEGE)



Address: Vishwnath Puram,
Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
Website: www.mitmidr

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| | | <p>remineralization, and inhibiting bacterial metabolism. The topical effect provides the majority of the benefit.</p> <ul style="list-style-type: none">• Topical fluoride in the form of toothpaste (at-home use) and varnish (in-office use) should be recommended for all children starting at tooth eruption.• TOPICAL FLUORIDE: Toothpaste: Fluoridated toothpaste is recommended upon initial tooth emergence during infancy and throughout life. Do not recommend fluoride-free "training toothpaste."¹ From tooth emergence until age 3 years, a grain of rice-sized (or "dab") amount of fluoride toothpaste should be used to brush the teeth both morning and night.² For children aged older than 3 years, or when a child can effectively spit, a pea-sized amount of fluoride toothpaste should be applied morning and night.• Mouth rinses: Over-the-counter fluoride rinses may be beneficial for use for children, particularly those who have high caries risk or live in fluoride-deficient areas. Mouth rinses should be reserved for high-risk children aged older than 6 years who can rinse and spit.• Varnish: Fluoride varnish is a highly concentrated form of topical fluoride that is applied to teeth in a professionally supervised setting. Durapat is highly recommended varnish.• Dental providers may recommend other forms of topical fluoride, including highly concentrated fluoride gels. <u>Community water fluoridation</u>: Lastly, fluoridated community water aids in prevention of dental caries by up to 27%²¹ and reduces dental expenditures per capita²² by providing both topical and systemic routes of fluoride. Fluoridated tap water use should be encouraged instead of bottled water use, which may not contain fluoride and may be more acidic than previously anticipated, thus promoting demineralization of tooth structure.• 1st defluoridation project was taken up by NEERI at Nagpur in 1961. |
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Kejve
Principal
M. I. D. S. R. Dental College
LATUR



MAEER'S
MAHARASHTRA INSTITUTE OF DENTAL
SCISCIENCES & RESEARCH (DENTAL COLLEGE)



Address: Vishwnath Puram,
Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidsr.edu.in
midsr.latur@gmail.com
Website: www.mitmidsr

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| | | <ul style="list-style-type: none">Nalgonda technique was given by WG Nawalakhe in 1974. It involves addition of 3 readily available chemicals i.e. sodium aluminate, bleaching powder and filter alum in same sequence. |
| 17 | Vital Pulp Therapy | <ul style="list-style-type: none">Indirect pulp treatment is recommended as the most appropriate procedure for treating primary teeth with deep caries and reversible pulp inflammation provided that the tooth has been sealed with a leakage free restoration.Direct pulp capping of a carious pulp exposure in a primary tooth is not recommended as treatment failure might result in internal resorption or acute dentoalveolar abscess. In primary teeth after direct pulp capping or pulpotomy with MTA (Mineral Trioxide Aggregate) and concluded that MTA might be a favourable material for pulp capping and pulpotomy in primary teeth.Pulpotomy and partial pulpectomy techniques for devitalized primary teeth have been developed to preclude an almost impossible obturation problem. Pulpotomy is still the most common treatment for cariously exposed pulp in symptom free primary molarsFormocresol was introduced by Buckley in 1904 its composition is cresol-35%, gresol-15%, formaldehyde-19% and water-31%. |
| 18 | Pulp Treatment (non-vital pulp therapy) | <ul style="list-style-type: none">Pulpectomy Non-vital primary teeth may be retained successfully when pulpectomy procedure is employed. A single visit or two- visit pulpectomy may be undertaken. Primary molar roots are severely curved and the pulps are flat and tortuous with numerous branches and interconnections.Apexification and apexogenesis : When providing treatment for patients with mixed and young permanent dentitions, certain clinical scenarios may require interdisciplinary consultation and intervention such as following traumatic injuries and whenever permanent teeth require endodontic therapy. Young |



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MAHARASHTRA INSTITUTE OF DENTAL
SCISCIENCES & RESEARCH (DENTAL COLLEGE)



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Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
Website: www.mitmidr

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| | | <p>pulps in immature permanent teeth are larger than at a more mature stage. Immature permanent teeth have funnel shaped apical foramina which are commonly called "blunderbuss."</p> |
| 19 | Preventive Orthodontics | <ul style="list-style-type: none">• Preventive orthodontics is that part of orthodontic practice which is concerned with patients and parents education, supervision of the growth and development of the dentition and cranio-facial structures.• Interceptive orthodontics is defined as that phase of science and art of orthodontics employed to recognised and eliminate potential irregularities and malpositioned in developing dentofacial complex.• Kjellgren (1929) Sweden coined the term serial extraction.• Nance is father of serial extraction.• Space maintainer is device used to maintain the space created by loss of deciduous tooth.• Commonly use space regainer are Gerber space regainer, jack screw, cantilever spring. |
| 20 | Space Management | <ul style="list-style-type: none">• Space maintenance was coined by JC Brauer in 1941.• Management of space problems associated with the transitional stages from primary to permanent dentition is a routine component of Pedodontic practice and a complex phenomenon with a variety of physiological adaptations of occlusion. Problems in the dental arches involve lack of space, space loss, maleruption, malposition, and malalignment of teeth. All such problems relate to the following modes of treatment: space maintenance, space gaining and guidance in alignment and occlusion.• Space Maintenance in Anterior Segment 1) Removable partial denture -This can be given for young children who show a degree of cooperation and interest. It is not advisable to give a removable space maintainer in children with uncontrolled dental caries or who cannot maintain a proper oral hygiene to reduce the caries activity.2) Fixed Appliances - If a fixed appliance is required, one approach is to attach |

Sejee
Principal
M. I. D. S. R. Dental College
LATUR



MAEER'S
**MAHARASHTRA INSTITUTE OF DENTAL
 SCIENCES & RESEARCH (DENTAL COLLEGE)**



Address: Vishwnath Puram,
 Ambajogai Road
 Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
 227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
 Website: www.mitmidr

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| | | <p>the anterior replacement teeth to a 0.040 or 0.045 inch stainless steel wire frame work retained with bands or crowns on the second primary molar.</p> <ul style="list-style-type: none"> • Space Maintenance in Buccal Segment 1) Removable appliances - Acrylic partial denture is indicated when there has been bilateral loss of more than a single tooth. 2) Fixed Space Maintainers - Band and loop appliances - It is usually used for preserving space created by premature loss of single primary molar. 3 It consists of a band cemented commonly to the tooth posterior to the edentulous space and a loop of wire across the edentulous space abutting the anterior tooth. 4 The loop should be fabricated wide enough so that the succedaneous tooth can erupt into it. 5 The crown and loop is a variation of the band and loop appliance, and is used where stainless steel crown therapy is necessary on the abutment teeth. • Nance palatal arch appliance 6 - This is a maxillary custom-made fixed appliance developed by H.N. Nance in 1947, consisting of a heavy gauge stainless steel wire soldered to the palatal aspect of the first permanent molar bands. The wire is directed from the molars anteriorly and is attached to an acrylic button, about 0.5 inches in diameter. 7 Transpalatal arch 8 - Originally described by Robert Goshgarian in 1972, the transpalatal arch is a maxillary fixed appliance consisting of a heavy gauge stainless steel wire that extends from one maxillary first permanent molar, along the contour of the palate, to the contralateral first molar. It is adapted to the curvature of the palatal vault, so that it lies 2-3 mm away from the palatal mucosa, and an omega loop is usually incorporated midway across the span. The original design included a straight bar extending across the palate. It is referred as transpalatal bar. |
| 21 | Child Abuse and Neglect | <ul style="list-style-type: none"> • First documented and reported case of CA/CN occurred in 1874 with a child named Mary Ellen. • Physical Abuse Craniofacial, head, face, and neck injuries occur in more than half of child abuse cases. All suspected victims of abuse or neglect, including |



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**MAHARASHTRA INSTITUTE OF DENTAL
 SCIENCES & RESEARCH (DENTAL COLLEGE)**



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 Ambajogai Road
 Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
 227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
 Website: www.mitmidr

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| | | <p>children in state custody or foster care, should be examined carefully by the appropriate provider at some point during the course of the evaluation for signs of oral trauma, caries, gingivitis, and other oral health problems, which are more prevalent in maltreated children than in the general pediatric population.</p> <ul style="list-style-type: none"> • Sexual Abuse Although the oral cavity is a frequent site of sexual abuse in children, 16 visible oral injuries or infections are rare. When oralgenital contact is suspected, referral to specialized clinical settings equipped to conduct comprehensive examinations is recommended • Bite Marks Acute or healed bite marks may indicate abuse. Dentists trained as forensic odontologists can assist health care providers in the detection and evaluation of bite marks related to physical and sexual abuse. Bite marks found on human skin are challenging to interpret because of the distortion presented and the time elapsed between the injury and the analysis. • Bullying Thirty percent of children in the sixth to 10th grades report having been bullied and/or having bullied others. Children with orofacial or dental abnormalities (including malocclusion) are frequently subjected to bullying. • Dental Neglect Dental neglect, as defined by the American Academy of Pediatric Dentistry, is the "wilful failure of parent or guardian, despite adequate access to care, to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection." Dental caries, periodontal diseases, and other oral conditions can lead to pain, infection, loss of function, and worse if left untreated. Dentists are at an advantage when it comes to identifying child abuse. As most of the characteristic signs can be visualized in the craniofacial and oral regions |
| 22 | Crowns in Paediatric Dentistry | <ul style="list-style-type: none"> • PRE-FORMED METAL CROWN Preformed metal |

Seyan
Principal
 M. I. D. S. R. Dental College
 LATUR



MAEER'S
MAHARASHTRA INSTITUTE OF DENTAL
SCISCIENCES & RESEARCH (DENTAL COLLEGE)



Address: Vishwnath Puram,
Ambajogai Road
Latur.413531 (Maharashtra)

Tel. (02382) 228063, 227703,
227444, fax : (02382) 228063

Email:
principal@mitmidr.edu.in
midr.latur@gmail.com
Website: www.mitmidr

crown (PMCs) for primary molar teeth were first described in 1950 by Engel followed by Dr. William Humphrey(1950). They were made of stainless steel and were referred to by an acronym of SSC.

- Preveneered stainless steel crowns (PVSCCs) offer a potential esthetic and durable restoration for grossly decayed primary teeth, as these crowns allegedly combine the durability of conventional SSC with the esthetic appeal of composite resin. These crowns are available with a variety of facing materials such as composite resin or thermoplastic resin bonded to the stainless steel crown. Esthetic veneers are retained on the stainless steel crowns using a variety of mechanical and chemical bonding approaches.
- STRIP CROWN Among the most esthetic and popular restorations for carious primary anterior incisors are composite resin strip crowns. Resin composite strip crowns (SCs) have been utilized for over 2 decades to restore carious primary teeth
- POLYCARBONATE CROWN Conventional Class III carious lesions in primary teeth are usually treated with composite resins or amalgam. However, more severely decayed teeth require stainless steel crowns, composite crowns or polycarbonate crowns.

ZIRCONIA PAEDIATRIC CROWN: These are crowns made of zirconia for the primary dentition that contain no metal. Zirconia restorations are not new to the dental world and are one of the dominant types of ceramics used for a variety of computer aided design /computer aided manufacturing restorations, including framework/hand veneer, framework/milled veneer, full-contour fixed prosthodontics, implant abutments, and large im

Beysa
Principal
M. I. D. S. R. Dental College
LATUR