

# PEDODONTICS

## SYLLABUS

1. Applied Anatomy & genetics
2. Applied Physiology
3. Applied Pathology
4. Nutrition and Dietetics
5. Growth & Development: Prenatal and Postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.
6. Child Psychology: Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension & its management
7. Behavior Management: Non- pharmacological & Pharmacological methods.
8. Child Abuse & Dental Neglect
9. Conscious Sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children
10. Preventive Pedodontics: Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries - Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling
11. Dental Plaque: Definition, Initiation, Pathogenesis, Biochemistry, and Morphology Metabolism.
12. Microbiology & Immunology as related to-Oral Diseases in Children: Basic concepts, immune system in human body, Auto Immune diseases, Histopathology, Pathogenesis, Immunology of dental caries, Periodontal diseases, Tumors, Oral Mucosal lesions etc.
13. Gingival & Periodontal diseases in Children:
  - Normal Gingiva & Periodontium in children.
  - Gingival & Periodontal diseases- Etiology, Pathogenesis, Prevention & Management.
14. Pediatric Operative Dentistry
  - Principle Of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
  - Modifications required for cavity preparation in primary and young permanent teeth.
  - Various Isolation Techniques
  - Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)

- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems, strip crowns.

15. Pediatric Endodontics:

- a) Primary Dentition: - Diagnosis of pulpal diseases and their management - Pulp capping
- b) Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis Apexification, Concepts, Techniques and Materials used for different procedures.
- c) Recent advances in Pediatric diagnosis and Endodontics.

16. Prosthetic consideration in Paediatric Dentistry.

17. Traumatic Injuries in Children:

- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth with latest concepts.
- Management of jaw fracture in children.

18. Interceptive Orthodontics:

- a. Concepts of occlusion and esthetics: Structure and function of all anatomic component:, of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of ,Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- b. A comprehensive review of the local and systemic factors in the causation of malocclusion.
- c. Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- d. Biology of tooth movement: A comprehensive review of the principles Of teeth movement Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement
- e. Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- f. Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- g. Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image :rProcessing. Tracing, Radiation hygiene, Video imaging & advance Cephalometric ~ techniques).
- h. Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interception orthodontics.

19. Oral Habits in Children:

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting. mouth breathing & .various other secondary habits.

- Management of oral habits in children
20. Dental care of Children with special needs:
- Definition Etiology, Classification, Behavioral, Clinical features & Management of children with:
- Physically handicapping conditions
  - Mentally compromising conditions
  - Medically compromising conditions
  - Genetic disorders
21. Oral manifestations of Systemic Conditions in Children &. their Management
22. Management of Minor Oral Surgical Procedures in Children
23. Dental Radiology as related to Pediatric Dentistry
24. Cariology
- Historical background
  - Definition, Aetiology & Pathogenesis
  - Caries pattern in primary, young permanent and permanent teeth in children.
  - Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
  - Role of diet and nutrition in Dental Caries .
  - Dietary modifications & Diet counseling.
  - Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications
25. Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.
26. Congenital Abnormalities in Children: Definition, Classification, Clinical features & Management.
- 27) Dental Emergencies in Children and their Management.
- 28) Dental Materials used in Pediatric Dentistry.
- 29) Preventive Dentistry:
- Definition
  - Principles & Scope
  - Types of prevention
  - Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

- 30) Dental Health Education & School Dental Health Programmes
- 31) Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry
- 32) Fluorides:
  - Historical background
  - Systemic & Topical fluorides
  - Mechanism of action
  - Toxicity & Management
  - Defluoridation techniques
33. Medicological aspects in Paediatric Dentistry with emphasis on informed consent.
34. Counseling in Pediatric Dentistry
35. Case History Recording, Outline of principles of examination, diagnosis & treatment planning
36. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases Various national & global trends of epidemiology of oral diseases.
37. Comprehensive Infant Oral Health Care
38. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography –
39. Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolar bone remodeling, speech rehabilitation.
40. Setting up of Pedodontics & Preventive Dentistry Clinic.
41. Emerging concept in Paediatric Dentistry of scope of laser/minimum invasive procedures in Paediatric Dentistry. First Year

### **Preclinical Work**

#### **(Duration - first 6 Months of First Year MDS)**

(One On Each Exercise)

1. Carving of all deciduous' teeth :

Permanent teeth 6531/\_\_\_\_\_

2. Basic wire bending exercises
3. Fabrication of
  - a. Maxillary bite plate / Hawley's'
  - b. Maxillary expansion screw appliance
  - c. . Canine retractor appliance
  - d. All habit breaking appliances
    - i. Removable type
    - ii. Fixed type
    - iii. Partially fixed and removable
  - e. Two Myofunctional appliance
  - f. Making of inclined plane appliance
  - g. Feeding appliances
4. Basic soldering exercise I - making of a lamppost of stainless steel wire pieces of different gauges soldered on either side of heavy gauge main post.
5. Fabrication of space maintainers
  - a. Removable type-
    - Unilateral Non - Functional space maintainer
    - Bilateral Non-Functional space maintainer
    - Unilateral functional space maintainer
    - Bilateral functional space maintainer
  - b. Space Regainers -
    - Hawley's appliances with Helical space regainer
    - Removable appliance with Slingshot space regainer
    - Removable appliance with Dumbell space regainer
  - c. Fixed Space maintainers .
    - Band & long loop space maintainer
    - Band & short loop space maintainer
    - Mayne's space maintainer
    - Transpalatal arch space maintainer
    - Nance Palatal holding arch
    - Nance Palatal holding arch with canine stoppers
    - Gerber space regainer
    - Distal shoe appliance
6. Basics for spot welding exercise

7. Collection of extracted deciduous and permanent teeth
  - a. Sectioning of the teeth at various levels and planes
  - b. "Drawing of section and shapes of pulp
  - c. Phantom Head Exercises : Performing ideal cavity preparation for various restorative materials for both Deciduous and permanent teeth
  - d. Performing pulpectomy, root canal treatment.
    - I. Tooth preparation and fabrication of various temporary and permanent restorations on fractured anterior teeth.
    - II. Preparation of teeth for various types of crowns
    - III. Laminates/veneers in composite ceramic.
    - IV. Tooth preparation to receive.
    - V. Bonding & banding exercise
8. Performing of behavioral rating and IQ tests for children.
9. Computation of: -
  - a. Caries index and performing various caries activity' test. .
  - b. Oral Hygiene Index
  - c. Periodontal Index
  - d. Fluorosis Index
10. Surgical Exercises: a). Fabrication of splints b). Type of Wiring c).Suturing,
11.
  - a. Taking of periapical, occlusal, bitewing radiographs of children
  - b. Developing and processing of films, thus obtained
  - c. Tracing of soft tissue dental and skeletal landmarks as observed on Cephalometric radiographs and drawing of various planes and angles, further interpretation of Cephalometric radiographs is analysis. .
  - d. Mixed dentition cast analysis
12. Library assignment/dissertation.
13. Synopsis

**Clinical work Requirements from 7 to 36 months**

The following is the minimum requirement to be completed before the candidate can be considered eligible to appear in the final M.D.S Examinations:

No	Clinical work				
1	Behavior Management of different age groups children with complete records	17	2	10	5
2	Detailed Case evaluation with complete records, treatment planning and presentation of cases with chair side and discussion	17	2	10	5
3	Step-by-step chair side preventive dentistry Caries 11 scheduled for high risk children with gingival and periodontal diseases &Dental	11	1	5	5
4	Practical application of Preventive Dentistry concepts in a class of 35-50 children.  Dental Health Education & Motivation	7	1	4	2
5	Pediatric Operative Dentistry with application of recent .concepts  (a). Management of Dental Caries				

	(I) Class I	50	30	10	10
	(II) Class II	100	40	50	10
	(III) Other Restorations	100	20	50	30
	(b) Management of traumatized anterior Teeth	15	04	06	05
	(c) Aesthetic Restorations.	25	05	10	10
	(d). Pediatric Endodontic Procedures				
	• Deciduous teeth	150	30	50	70
	• Pulpotomy / Pulpectomy	20	03	7	10
	• Permanent Molars	15	02	3	10
	• Permanent Incisor	10	02	04	04
6	Stainless Steel Crowns -	50	10	20	20
7	Other Crowns	05	01	02	02
8	Fixed: Space Maintainers Habit breaking appliances	30	08	12	10
9	Removable: Space Maintainers Habit brceking appliances	20	05	07	08
10	Functional Appliances	05	01	02	02



1 1 .	Preventive measures like fluoride applications & Pit & Fissure Sealants applications with complete follow-up and diet counseling	50	15	20	15
1 2 .	Special Assignments (i) School Dental Health Programmes	03	01	01	01

13. Library usage

14. Laboratory usage

15. Continuing Dental Health Programme

(The figures given against S1. No.4 to 12 are the minimum number of recommended procedures to be performed)

### **3.9.3 FORMATIVE EVALUATION PATTERN**

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities.

#### **Exam pattern by the department:**

MDS Part I	Once every three months	100 marks	3 hours
MDS Part II	Once every two months	100 marks	3 hours
MDS Part III	Once every month	100 marks	3 hours

Pre-clinical and clinical examination is conducted accordingly.

## **SUMMATIVE EVALUATION PATTERN**

### **A. Theory**

400 marks

Written examination shall consist of four question papers each of three hours duration. Total marks for each paper will be 100. Paper-I, Paper-II and Paper-III shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Paper-IV will be on essay. Question on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:-

**Paper-I:** Applied Basic Sciences: Applied Anatomy, Physiology, Pathology, Microbiology, Nutrition & Dietics, Growth and Development and Dental Plaque, Genetics:

**Paper-II:** Clinical Paedodontics

Conscious sedation, Deep sedation and General Anesthesia in Pediatric Dentistry.

Gingival and Periodontal diseases in children.

Pediatric operative dentistry.

Paediatric Endodontics.

Traumatic Injuries in Children

Interceptive orthodontics.

Oral habits in children.

Dental care of children with special needs.

Oral manifestation of systemic conditions in children and their management.

Management of minor oral surgical procedures in children.

Dental radiology as related to pediatric dentistry.

Pediatric oral medicine and clinical pathology.

Congenital abnormalities in Children.

Dental emergencies in children and their management.

Dental materials used in Pediatric dentistry.

Case history recording.

Setting up of Pedodontics and Preventive dentistry clinic.

**Paper-III:** Preventive and Community Dentistry as applied to Pediatric Dentistry

Child Psychology

Behavior management

Child abuse and dental neglect.

Preventive Pedodontics

Cardiology

Preventive Dentistry

Dental health children and School dental health programmes

Fluorides

Epidemiology

Comprehensive infant oral health care/comprehensive cleft care.

Principles of Bio-statistics and Research methodology and understanding of computers and photography.

**Paper-IV:** Essay

The topic assigned to the different papers is generally evaluated under these sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping of topics.

**B. Practical examination:** 300 marks

(conducted for a minimum of 2 days)

Viva voce 100 marks

**1<sup>st</sup> Day**

1. Pulpectomy: Case discussion, pulp therapy i.e. Pulpectomy on a primary molar.

Case discussion	30 marks
LA & Rubber dam application	30 marks

Working length X-ray	30 marks
Obturation	30 marks
Total	120 marks

2. S.S. Crown: Case discussion, crown preparation on a primary molar for stainless steel crown and cementation.

Case discussion	20 marks
Crown preparation	30 marks
Crown selection and cementation	30 marks
Total	80 marks

3. Space maintainer:

Case discussion	25 marks
Band adaptation	25 marks
Impression	25 marks
Evaluation and cementation of fixed space maintainer	25 marks
Total	100 marks

**2<sup>nd</sup> Day**

Viva Voce

100 marks

Grand viva	80 marks
Pedagogy	20 marks