

**UNIVERSITY of BENGHAZI
FACULTY OF DENTISTRY
DEPARTMENT OF PEDIATRIC DENTISTRY**

**Master of Dental Science Teaching Program in
Pediatric Dentistry**

**Degree awarded: M.D.Sc in Pediatric Dentistry.
Duration of course: Three-year full time.**

PREAMBLE:

1. Objectives:

By the end of three years the successful candidate should be able to

- 1.1 Establish a good oral health of the child.
- 1.2 Instil a positive dental attitude and behaviour in children.
- 1.3 Understand and practice the principles of Pediatric Dentistry.
- 1.4 Provide primary and therapeutic, preventive and therapeutic oral health care from infancy through adolescence and those with special health care needs.
- 1.5 Conduct patient and parent oral health care counselling.
- 1.6 Prevent and intercept any developing malocclusion.
- 1.7 Be able to conduct lectures and clinical training for the undergraduate students independently.

2. Skills:

- 2.1 Be able to obtain a detailed clinical history, thorough clinical examination of the Pediatric patient, carry out necessary investigation, arrive at a diagnosis, formulation of treatment plan and execution of the treatment procedure using appropriate behaviour management techniques.
- 2.2 Be proficient in treating dental diseases in Pediatric patients.
- 2.3 Be able to diagnose and manage special children effectively and efficiently.
- 2.4 Be able to adopt novel methods and techniques of Pedodontic management based on scientific research which is in the best interest of Pediatric patients.

3.0 Course Duration & Description:

The duration of the course shall be for three academic years. All the candidates for the degree are required to pursue the recommended course for three academic years as full –time candidate. By the end of the first year the candidates appear for basic sciences examination and only the successful candidates will be promoted to

the second year. In the second year, state of the art theoretical and Clinical training in Pediatric Dentistry will be imparted to the candidates. Within the first two months of the second year the candidates are required to submit their synopsis/protocol for research. The candidates will appear for the final written and clinical exam in Pediatric Dentistry by the end of the second year. Submission of the dissertation is at the end of third year.

4.0 Syllabus for M.D.Sc in Pediatric Dentistry

1. Examination of mouth and other relevant structures, diagnosis and treatment planning.
2. Cephalometrics and Facial esthetics: The key to complete treatment planning.
3. Growth of face and Dental arches.
4. Nutritional considerations for the Pediatric Dental patient.
5. Development, local systemic and congenital factors that influence the process of eruption and Morphology of Primary Teeth.
6. Acquired and Developmental disturbances of the teeth and associated oral structures.
7. Oral Pathologic conditions in Children-Tumours and oral soft tissues and cysts and tumours of the bone.
8. Dental radiology.
9. Changing concepts and practice of Pediatric Dentistry.
10. Dental caries: Etiology, Pathogenesis, Clinical manifestations and management.
11. Mechanical and Chemical Plaque control.
12. Professionally applied and self-administered Fluorides.
13. Water fluoridation , Systemic Fluorides and Fluoride metabolism.
14. Non- Pharmacologic management of children's behaviour.
15. Pharmacologic management of children's behaviour.
16. Local anaesthesia and pain control for the child and adolescent.

17. Hospital dental services for children and the use of General Anaesthesia.
18. Oral surgery for children.
19. Dental materials.
20. Pit and fissure sealants and Preventive resin restoration.
21. Restorative Dentistry.
22. Treatment of deep caries, vital pulp exposure and pulpless teeth.
23. Treatment of Discoloured Vital teeth: Bleaching and laminate veneers.
24. Gingivitis and Periodontal disease.
25. Management of trauma to the teeth and supporting tissues.
26. Prosthodontic treatment of the Adolescent Patient.
27. Dental problems of children with disabilities.
28. Management of Medically compromised Patient: Hematologic Disorders, cancer, Hepatitis and AIDS.
29. Management of the Developing occlusion (Preventive and Interceptive Orthodontics).
30. Functional appliance therapy.
31. Capabilities and Limitations of Removable Orthodontic appliances.
32. Multidisciplinary team approach to cleft lip and palate management.
33. Genetic basis of Oral diseases
34. Practice management.
35. Community Oral Health.

5.0 Training Programme

5.1 Bench work – The students perform an exhaustive list of preclinical exercises before proceeding to work on patients. This includes exercises on Dental Anatomy, Prosthodontics, Orthodontics and Endodontics.

5.1A Drawing album and records.

- I. Table showing chronology of eruption of teeth.
- II. Table showing tooth dimensions.
- III. Pulp morphology.
- IV. Development of dentition at different ages.
- V. Development of occlusion at different ages.
- VI. Diagram showing cephalometric points, planes and angles.
- VII. Table showing differences between primary, young permanent and permanent teeth.
- VIII. Table showing modification of cavity preparation for primary teeth.
- IX. Mixed dentition analysis, principles and measurements.
- X. Principles of soldering and welding.
- XI. Principles and methods of rubber dam.

5.1B) *Carving of all deciduous teeth on wax blocks (Ten only)*

5.1C) *Preparation of special Trays* with Upper and Lower impressions of three year old child.

5.1D) *Cephalograms* – Cephalograms learning and analysis of children with normal occlusion and morphology at 3, 7, 11 and 14 years.

5.1E) *Mixed dentition analysis.*

5.1F) *Basic Orthodontic Exercises:*

- A) Straightening of wire (6"-19 gauge).
- B) Square, triangle and circle formation (2").
- C) Clasps- different types (3/4 clasp, Full clasp, Adam's clasp, Arrowhead clasp, Modified arrowhead clasp, Ball clasp).
- D) Labial bow – different types (short, long, high with apron spring).
- E) Different types of springs:
 1. Springs: Finger spring, single cantilever, double cantilever springs.
 2. Canine retractors viz., U-loop, Helical, Palatal canine retractors and Robert's retractor.

F) Soldering exercises – Square & Triangle of 2 ”, lamppost formation, X- mass tree.

5.1G) Appliances:

A) Space maintainers -

- 1) Removable unilateral/bilateral, functional /non-functional appliances.
- 2) Fixed space maintainers:
 - A) Band with loop (long & short loop).
 - B) Transpalatal and nance palatal holding arches.
 - C) Lingual arch with canine stoppers.
 - D) Distal shoe.
 - E) Mayne’s space maintainer.

B) Space regainers for distalizing first permanent molar -

- 1) Removable Type. Helical space regainer, Sling-shot space regainer, Dumbell space regainer.
- 2) Fixed Type: Gerber space regainer.
- C) Habit breaking appliance -
 - 1) Removable Type.
 - 2) Fixed Type.
- D) Expansion plates with Coffin spring and Expansion screw.
- E) Hawley’s retention appliance.
- F) Hawley’s appliance with anterior bit plane.
- G) Posterior bite plane with single and double canti-lever springs.
- H) Upper inclined plane and lower inclined plane.
- I) Upper appliance with finger springs to correct median diastema.
- J) Upper canine retraction appliance with helical and U-loop springs.
- K) Activator.

5.1H) Conservative and Endodontic Exercises (on typhodont / extracted teeth).

- A) Class – II Cavity in 64, 65 and 84,85.
- B) Stainless Steel Crown on 74 and 85.
- C) Pulpotomy on 75.
- D) Pulpectomy on extracted teeth 51,61,54 or 64,55 or 65,75 or 85.
- E) Class – II MOD in 46.
- F) Class – I mesial and distal pit with palatal extension in 26.
- G) Class – I with buccal extension on 36 or 46.
- H) Jacket Crown on 12 or 22 and 31 or 41.
- I) Crown with acrylic facing on 11 or 21.

- J) Class – II Inlay in 37 or 47.
- K) RCT on Extracted teeth 16,22,23,36 or 46.
- L) Post and Core crown on 11 or 21.

5.1I) Proforma of behavioural rating scales for children.

5.1J) Oral Radiology –

- A) Taking of periapical, occlusal bitewing radiographs in children.
- B) Developing and processing of films.
- C) Tracing of soft tissue dental and skeletal landmarks as observed on cephalometric radiographs.
- D) Drawing of various planes and angles.

5.2 Seminar presentation – The students are required to present seminars each related to clinical pediatric dentistry.

5.3 Journal Club – The students present a journal club every month where articles are collected from current literature on a topic of relevance related to clinical pediatric dentistry.

5.4 Debates – In order to promote a comprehensive understanding of pediatric dentistry the post graduate students are given a new and often controversial topic in pediatric dentistry. The debate is moderated by a senior professor. They are required to collect articles from the current literature to support their argument, and at the end of the debate a consensus is achieved.

5.5 Problem-based learning:

The students take part in regular, small discussions, where they are given a series of carefully designed, integrated, and interesting pediatric dental problems short account of real life situations. Each student will actively contribute to the learning process during group discussions of the problems.

5.6. Clinical work/ discussion:

a. **Departmental** – All special cases are presented before the consultant of the department and a comprehensive treatment plan is formulated before the initiation of treatment. The clinical performance of each candidate is entered into a postgraduate clinical evaluation form (Appendix I) by the consultant.

The following is the compulsory minimum required quota to be completed by the Candidate before appearing for the final M.D.Sc. Examinations:-

1) Restorations:

(a) Anterior restorations 100

(b) Posterior restorations 100

2) Crowns:

(a) Polycarbonate crowns 10

(b) Stainless Steel Crowns 50

(c) Strip crowns 20

3) Endodontic Procedures in deciduous teeth:

(a) Pulpotomy 50

(b) Pulpectomy 50

4) Endodontic Procedures in permanent teeth:

(a) Molars : Apexogenesis:- IPC-5, DPC-5, Coronal Pulpotomy-5.

Apexification:- 10

RCT:- 10

(b) Incisors : Apexogenesis:- IPC-5, DPC-5, Coronal Pulpotomy-5.

Apexification:- 10

RCT:- 10

5) Management of Traumatic injuries:

Intrusion, Extrusion, Lateral luxation & Avulsion-10.

6) Space Maintainers

1) Removable unilateral/bilateral, functional /non-functional appliances-5.

2) Fixed space maintainers:

A) Band and loop -5.

B) Transpalatal and nance palatal holding Arch-5

C) Lingual arch with canine stoppers-5

D) Distal shoe-5

B) Space regainers for distalizing first permanent molar -

Fixed Type: Gerber space regainer-5

7) Appliances:

(a) Oral Screen-5

(b) Habit breaking appliances: Fixed-10, Removable-10.

(c) Correction of anterior crossbite-5

8) Functional Appliances 5

9) Preventive measures like Fluoride application and Pit and Fissure sealant application with complete follow up- 150.

10) Extractions-100

11) Minor surgical procedures -10

13) Total oral rehabilitation cases with full records-5.

Elective clinical requirements:

14) Apicectomy-5.

15) Full mouth rehabilitation cases under GA: 15.

- b. **Transdepartmental** – Cases with a multidisciplinary aspect are discussed with senior faculty of other department in order to ensure a comprehensive oral care for the child.
- c. **Growth clinic** - The department conducts a growth clinic for the examination, diagnosis and non-surgical management of patients with growth deficiency including myofunctional therapy and pre surgical growth modification.
- d. **Zero hour program** - The students are given the opportunity to interact freely with the staff through the zero hour programmes, whereby the student may ask any question to any staff member.
- e. **Total oral health rehabilitation under GA** – The post graduate students are trained for complete oral rehabilitation under General Anesthesia.

5.7 Library Dissertation – All postgraduates are expected to compile a library dissertation reviewing the current literature available on a topic of current interest in pediatric dentistry.

5.8 Research program – The department encourages research among the post graduates by encouraging them to take up parallel studies in addition to the dissertation work required by the university.

5.9 Work diary/ log book:

Every candidate shall maintain a work diary and record of his/ her participation in the training programme conducted by the department such as clinical work, journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures done by the candidate. The work diary shall be, scrutinized and certified by the chairman of the Department and presented in the University practical/clinical examination.

6.0 Compulsory participation in National/ Conferences/ workshops/ CDE/ symposium.

7.0 Dissertation:

Candidates are required to submit a dissertation based on a research protocol developed by them with the help of course director at the beginning of the second year. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

Every candidate pursuing M.D.Sc Degree course is required to carry out work on a selected research project under the guidance of a post- graduate teacher. The results of such a work shall be submitted in the form of a Dissertation.

The dissertation should be submitted by the end of third year of M.D.Sc. The dissertation shall be referred to the examiners and acceptance of it by the examiners shall be pre-requisite for

awarding degree to the candidate by the University.

The Dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Every candidate shall submit to the department in the prescribed proforma, a synopsis containing particulars of proposed dissertation work at the beginning of the second year. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic shall be made without prior approval of the Department.

The dissertation should be written under the following headings:

- i) Introduction
- ii) Aims or objectives of study
- iii) Review of literature
- iv) Material and methods
- v) Results
- vi) Tables
- vii) Discussion
- viii) Summary
- ix) Conclusion
- x) Bibliography

The written text of dissertation should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be approved by the supervisor and certified by the Department of Pediatric Dentistry.

Approval of synopsis of the dissertation work is an essential precondition for a candidate to appear in the Final examination.

8.0 Mock exams:

The department shall conduct mock exams before the final examination. The exam may include written papers, practicals/clinicals and viva voce. Records and marks obtained in such tests will be maintained by the department.

9.0 Scheme of examination:

Part-I:

Written basic sciences examination will be conducted by the end of first year.

Part-II:

Written final exam shall consist of two papers each of three hrs duration. Paper-I consists of multiple choice questions and Paper-II consists of Pediatric dental problem solving questions.

Clinical Practical and viva-voce exam shall be conducted, each candidate is given a patient and they are required to conduct a thorough clinical recording of the case and discuss with the examiners. All examiners will conjointly evaluate the candidate's comprehension, analytical approach, expression, interpretation of data and communication skills with respect to recording, presentation, use of behaviour management skills and execution of the case as follows:

1. Case history recording:

- a. Proficiency in eliciting the history.
- b. Detailed clinical examination.
- c. Detailed behavioural assessment.
- d. Data analysis.
- e. Supplemental data analysis.
- f. Operational treatment plan.

2. Case presentation:

- a. Brief introduction.

- b. Discussion of findings.
- c. Discussion of problem goals.
- d. Treatment planning.
- e. Detailed explanation about treatment planning to the parent.

3. Behaviour management:

- a. Began with case promptly.
 - b. Tell, show & do.
 - c. Reinforced positive behaviour.
 - d. Gave child undivided attention.
 - e. Restrained disruptive behaviour.
3. **Treatment procedure:** executes the clinical procedure proficiently.

DISTRIBUTION OF MARKS FOR FINAL M.D.Sc EXAM:

TOTAL MARKS: 200.

1. THEORY EXAM: 100.

- a) Written exam: 75.
- b) Viva-voce exam: 25.

2. CLINICAL EXAM: 100.

10.0 Awarding the Degree:

A candidate who is declared successful in the M.D.Sc examination and can defend their thesis competently shall be awarded a degree in Master of Dental science in Pediatric Dentistry by the University.