

Prosthodontics Including Removable, Fixed, Maxillofacial & Implantology.

Goals:-

The goals of postgraduate training is to train B.D.S. graduates who will:

- ❖ Practice specialty efficiently and effectively, backed by scientific knowledge and skill.
- ❖ Exercise empathy and a caring attitude and maintain high ethical standards.
- ❖ Continue to evince keen interest in continuing professional education in the specialty and allied specialties irrespective of whether in teaching or practice.
- ❖ Willing to share the knowledge and skill with any learner, junior or a colleague.

Objectives:-

The objective is to train a candidate so as to ensure high degree of competence in both general and special area of interest and prepare him for a career in teaching, research and specialty practice. A candidate must achieve a high degree of clinical proficiency in the subject matter and develop competence in research and its methodology.

The above objectives are to be achieved by the time the candidate competes the course.

The objectives may be considered as under:-

1. Knowledge (Cognitive Domain)
2. Skills (Psycho motor domain)
3. Human Values, ethical practice and communication abilities.

Knowledge

- ❖ Demonstrate understanding of basic science relevant to specialty.
- ❖ Describe etiology, pathophysiology, and principles of diagnosis and management of common problems within the specialty in adults & children.
- ❖ Identify social, economic, environmental and emotional determinants in a given case and take them in to account for planning treatment.
- ❖ Recognise conditions that may be outside the area of competence and to refer them to an appropriate specialist.
- ❖ Undertake audit, use information technology and carryout research both basic and clinical with the aim of publishing or presenting the work at various scientific gatherings.

Skills

1. Take a proper clinical history, examine the patient, perform essential diagnostic procedure and order relevant tests and interpret them to come to a reasonable diagnosis about the condition.
2. Acquire adequate skills and competence in performing various procedures and required in the competence.

Human values, ethical, practice and Communication abilities:-

- ❖ Adopt ethical principles in all aspects of practice.
- ❖ Foster professional honesty and integrity.
- ❖ Deliver patient care irrespective of social status, caste, creed or religion of patient.
- ❖ Develop communication skills, to explain various options available in management and to obtain true informed consent from the patient.
- ❖ Provide leadership and get the best out of his team in a congenial working atmosphere.
- ❖ Apply high moral and ethical standards while carrying out human or animal research.
- ❖ Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
- ❖ Respect patient's rights and privilege including patient's right to information and right to seek a second opinion.

2. Eligibility

A candidate for admission to the M.D.S. course (Master of Dental Surgery) must have a degree of B.D.S. (Bachelor of Dental Surgery) from a college and university recognised by a Dental Council of India. Candidates not possessing, a recognised dental qualification for the above purpose should secure the prior approval of his / her qualification by the Dental Council of India before admission to the M.D.S. course.

Minimum 50% of marks in entrance test for all categories.

3. Criteria for Selection for Admission:

As per the instructions of the Govt. of India / State Govt.

4. Eligibility Certificate:

As per the eligibility criteria fixed by the Dental Council of India for admission in the M.D.S. courses.

A Candidate who has been admitted to Postgraduate course should register his / her name with the University within the month of admission after paying the registration fee.

5. **Course Duration:**

- ❖ Students to take cross faculty module of their interest and choice.
- ❖ Curriculum to nurture not only knowledgeable graduate but one with sense of confidence and pride in his profession and independent learner with commitments towards continuing education.

The course shall comprise of minimum of three years or 36 months during which the student will be deemed to have acquire:

- a) An updated knowledge of Prosthodontics including Removable, Fixed, Maxillofacial Prosthodontics and Implantology, growth and development of teeth, jaws periodontics, T.M.J. and occlusion.
- b) Competence at running independently Prosthodontics services and Maxillofacial Prosthodontics.
- c) Working knowledge of some of the important instrument, equipment in the scientific investigations of dental materials, prosthodontics rehabilitation including Masticatory efficiency, TMJ dysfunction syndromes & craniofacial anomalies.
- d) Familiarity with the modern methods and assessment strategies for teaching of undergraduate students.
- e) Clinical training in major disciplines including Oral Cancer and Plastic Surgery. The students shall be rotated for training in different sections i.e. Radio diagnosis (roentgeno-cephalometric, panoramic), Paediatric Surgery (cleft lip and palate repair) and Head & Neck Cancer.
- f) The student shall write at least two papers and a thesis on a research project under the perceptorship of the guide.

6. **Attendance, Progress and Conduct:**

A candidate pursuing degree course should work as a full time student. No candidate is permitted to run a clinic or work in clinic / laboratory / Nursing home while studying in a postgraduate course. Each year shall be taken as a unit for the purpose of calculating attendance. Every student shall attend symposia, seminars, conference, journal review meetings, grand rounds, case presentation, clinics and lectures during each year as prescribed by the department (**Minimum one seminar, one journal , one case discussion and one demonstration per week**) and not absent himself / herself from work without valid reasons.

Every candidate shall not have less than **85%** of attendance in each year of the course. However, candidates should not be absent continuously as the course a full time one.

7. Monitoring Progress of Studies:

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 journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Guide and Head of Department, and presented in University Practical/Clinical Examination.

8. The course shall be given in the following forms:

- 1) Didactic Lectures, seminars, demonstrations on clinical & Laboratory techniques once a week (each)
- 2) There will be Journal Club once a week. Each student will be assigned a Journal of Prosthetic Dentistry, the International Journal of Prosthodontics, Oral Rehabilitation or of allied sciences to review the most important articles that have appeared in the Journals Irrespective of topic to give practice to the student in comprehension and presentation of the data and his own views before a group.
- 3) Clinical case conference once a week – the student will present all data including case records, models, the radiographs of photographs.
- 4) The students will work on patients in the clinics, both in the mornings and in the afternoons under the supervision of teachers.
- 5) The student will undertake the Laboratory work for the patients who are under their treatment.
- 6) Lectures in basic sciences-attendance at this course given by the basic science disciplines will be compulsory. This is usually given once every year and attendance at these courses will be essential.
- 7) Concurrent clinical training each student will be required to undergo compulsory concurrent clinical training for this purpose in Plastic Surgery, Otolaryngology and Radio diagnosis in the general hospital or Medical college.
- 8) Training in methodology of teaching - the postgraduate will attend the undergraduate classes to learn the methodology teaching and they will be encouraged to teach the undergraduate students after preparing lectures and getting it corrected by a faculty member under whom he will work.
- 9) The candidate will get training in various aspects of Prosthodontics during the three years both in the clinics and laboratory.

10) Internal assessment examination will be conducted every 6 months.

9. Dissertation:

Every candidate pursuing **MDS** degree course is required to carry out work on a selected research project under the guidance of a recognized graduate teacher. The result of such a work shall be submitted in the form of a dissertation.

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 Registrar of the University in the prescribed performa, a synopsis containing particulars of proposed dissertation work within four months from the date of commencement of the course on or before the date notified by the University. The synopsis shall be sent through the proper channel such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

The dissertation should be written under the following headings:

- 1) Introduction
- 2) Aims and Objectives of Study
- 3) Review of Literature
- 4) Materials and Methods
- 5) Results
- 6) Discussion
- 7) Conclusion
- 8) References
- 9) Tables
- 10) Annexure

The written text of the dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It 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 certified by the guide, head of the department.

Six copies of dissertation will be prepared by the students. One copy will be submitted to the department & four copies shall be submitted to the registrar (Evaluation), Six months before final examination on or before the dates notified by the University. One will be student's own copy.

The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate appear in the University examination.

Guide:

The academic qualification and teaching experience required for recognition by the University as a guide for dissertation work is as laid down by Dental council of India.

Co-guide:

A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching / training by Dental Council of India.

Change of guide:

In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with permission from the university.

Scientific Publication Skills (publication/presentation)

The paper should be prepared to be published(based on dissertation) before appearing for the final examination. It is in addition to at least two publications of papers in indexed journals during the course of study as a first writer of the paper. Two-paper/ poster /table, clinic must be presented by the candidate in P.G. convention/ National level conference.

10. SYLLABUS OR COURSE IN PROSTHODONTICS

A. Basic sciences

1. Biology and anatomy of dental tissues
 - ❖ Anatomy of the stomatognathic system.
 - ❖ Biology and physiology enamel, dentine Cementum, pulp and periodontium.
 - ❖ Pathology of the periodontal, Pupil and periapical tissues
 - ❖ Anatomy and histology of oral mucous membrane.
 - ❖ Anatomy of T.M.J. its movements and Myofacial pain dysfunction syndrome.
 - ❖ Anatomy physiology and function of the masticator system.
2. Growth and development of face jaws and teeth.
3. Endocrine glands in particular reference to Pituitary, Parathyroid and Thyroid glands.
4. Pathology of dental tissues and oral cavity.
 - ❖ Dental plaque in relation to dental disease.
 - ❖ Sensory perception and pain
 - ❖ Oral pre-cancerous lesions.

- ❖ Malignant lesions of the oral cavity and head and neck region.
 - ❖ Developmental anomalies of face, jaws and teeth.
5. Gerodontics
 - ❖ Consequences and management of age changes in the dentition.
 - ❖ Medical conditions and medications affecting dental treatment
 - ❖ Nutrition in geriatric patients
 6. Anthropology as applied to craniofacial region.
 7. Genetics in Dentistry.
 8. Normal occlusion, development of occlusion in deciduous, mixed and permanent dentitions.
 9. Nutrition.
 - ❖ Role of Vit A, C and B complex in oral mucosal and periodontal health.
 - ❖ Role of Calcium and Vit D in growth and development of teeth and jaws.
 10. Mastication, swallowing, Speech and deglutition mechanism.
 11. Salivary glands and saliva,
 12. Indices in diagnosis of dental caries and periodontal diseases.
 13. Sterilization in dentistry
 14. Tooth numbering systems.
 15. Introduction to Biostatistics.
 - ❖ Scope and need for statistical application to biological data.
 - ❖ Definition of selected terms- scale of measurements related to statistics.
 - ❖ Methods of collecting data.
 - ❖ Presentation of data statistical diagrams and graphs.
 16. Dentist technician communication- Lab work authorization form and instruction.

Dental Materials:

1. Physical, mechanical and biological properties of modern dental materials.
2. Gypsum products used in prosthodontics.
3. Die and counter die materials.
4. Various resins used in prosthodontics including Denture base materials
5. Impression materials used in Dentistry.
6. Duplicating materials.
7. Metals and alloys used in Dentistry.
8. Dental Waxes including inlay casting wax
9. Investments.
10. Casting machines procedures and defects.
11. Soldering and Welding
12. Cements - restorative and luting
13. Composites - various generations and system in order of development.
Composition, uses and manipulation.

14. Tissue conditioner and soft reline.
15. Porcelain Including Porcelain fused to Metal alloys.
16. Porcelain furnace, firing and techniques.
17. Mechanics of tooth cutting (burs and points)
18. Cutting, polishing and finishing agents.
19. Implant materials.
20. Bonding agents – enamel and dentin bonding agents and various other adhesives.

B. Complete Denture Prosthodontics:

1. Anatomy and physiology of edentulous mouth.
2. Diagnosis and treatment planning for a completely edentulous mouth.
3. Oral aspects of systemic diseases of prosthodontic interest.
4. The problem of reduction of residual ridges.
5. Preprosthetic surgery.
6. Impressions in Complete Denture Prosthodontics.
 - ❖ Objectives and principals of impression making.
 - ❖ Philosophies and concepts of impression making
 - ❖ Materials and techniques of impression making
7. Posterior palatal seal – principles and techniques.
8. Articulators
 - ❖ Brief history and classification
 - ❖ Requirements and limitations
 - ❖ Role in CD fabrication
9. Face bow in complete denture construction.
 - ❖ Different type of face bows.
 - ❖ How to orient face bow
 - ❖ Role of face bow record in complete denture fabrication
10. Hinge axis
 - ❖ Concept of hinge axis with knowledge about different schools of thought
 - ❖ Method to locate
 - ❖ Significance in CD fabrication
11. Recording of mandibular movements and maxillo – mandibular relations in edentulous patients.
 - ❖ Definitions and changing concepts of centric relation
 - ❖ Methods to record CR.
 - ❖ Vertical relation – methods to record and verify.
12. Selection and arrangement of anterior teeth including guidelines for complete denture esthetics.

13. Complete denture occlusion.
14. Selection and arrangement of posterior teeth
15. Verification of maxillo – mandibular relation records.
16. Try in of complete dentures.
17. Laboratory procedures involved in complete denture construction.
18. Denture Insertion.
19. Patient's education and complete denture maintenance
20. Compliance associated with dentures.
21. Relining and rebasing of denture.
22. Denture repair.
23. Immediate dentures.
24. Transitional dentures.
25. Overlay dentures.
26. Obturators on complete denture.
27. The single complete denture.
28. Implants for the edentulous arches.
29. Geriatrics complete denture patients.
30. Preventive prosthodontics
31. Epidemiology of edentulous ness.
32. Role of computers in prosthodontics

C. Partial Denture Prosthodontics

1. Introduction and terminology used in partial denture prosthodontics.
2. Examination, Diagnosis and treatment planning in partial denture prosthodontics.
3. Classification of partially edentulous arches.
4. Components of removable partial dentures and their functions.
 - a. Major connectors
 - b. Minor connectors
 - c. Rests and rest seats
 - d. Direct retainers
 - e. Indirect retainers
 - f. Denture base considerations and teeth.
 - g. Stress brakers.
5. Principles of removable partial denture (R.P.D.) design and RPI concept.
6. Surviving.

7. Mouth preparation for removable partial denture including preparation of abutment teeth.
8. Impression material and procedures for partially edentulous mouth.
9. Support for the distal extension denture base.
10. Occlusal relationship and arrangement of teeth.
11. Laboratory procedures involved in cast partial dentures.
12. Trying in and adjustment of cast frame work.
13. Processing, finishing, delivery and instructions about maintenance of removable partial dentures.
14. Repairs and additions to removable partial dentures.
15. Acrylic partial dentures.
16. Immediate partial dentures

D. Fixed Prosthodontics:

1. Diagnosis and Treatment Planning.
2. Periodontal considerations in fixed prosthodontics.
3. Fundamental of Occlusion.
4. Bio-mechanical principles of tooth preparation.
5. Individual tooth preparation.
 - a. Complete Metal Crown
 - b. Partial veneer crown for Ant. and post teeth.
 - c. Porcelain jacket crown
6. Preparations for intra-coronal restorations.
7. Preparations for extensively damaged or endodontically treated teeth.
8. Provisional or temporary restorations.
9. Fluid control and soft tissue management.
10. Impression material and techniques.
11. Working casts and dies.
12. Interocclusal records techniques and material
13. Articulation of casts.
14. Wax patterns.
15. Articulators in fixed partial denture prosthodontics
16. Precision and semiprecision attachment.
17. Connectors in FPD
18. Investing and casting
19. Occlusal equilibration.

- 20 . Finishing and cementation.
- 21 . Pontics.
- 22 . Cementing Medium.
- 23 . Full mouth rehabilitation-philosophies, techniques, clinical and lab procedure.
- 24 . Porcelain fused to metal restorations.
- 25 . Porcelain Laminates.
- 26 . Resin bonded retainers(Maryland bridges)
- 27 . Fixed removable Prosthodontics.
- 28 . Solder joints and other connectors.

E. Maxillofacial Prosthodontics:

1. Dentist and Patient interaction Psychological status of the patient Social support system.
2. Chemotherapy, radiation therapy their effect on oro-dental tissue.
3. Prosthodontic reconstruction of Acquired mandibular defects.
 - ❖ Mandibular Guidance appliance
 - ❖ Speech prosthesis
 - ❖ Rehabilitation
 - ❖ Clinical and laboratory steps for their fabrication.
4. Prosthodontic reconstruction of Acquired developmental defect of maxilla
 - ❖ Obturators
 - ❖ Speech appliance
 - ❖ Clinical and laboratory steps for their fabrication.
5. Restoration of Acquired and developmental Facial defects
 - ❖ Eye
 - ❖ Auricular
 - ❖ Nasal
 - ❖ Lip
 - ❖ Clinical and laboratory steps for their fabrication.
6. Cranial and Facial implants
7. Reconstructive pre prosthetic surgery
8. Maxillofacial prosthesis materials
9. Miscellaneous prosthesis
 - ❖ Splints and stents
 - ❖ Radiation carrier prosthesis.
10. Methods of Retention for maxillofacial prosthesis.

F. Evidence based practice in Dentistry

1. Introduction to EBD
2. How to search for evidence
3. evidence based practice in FPD
4. evidence based practice in CD
5. evidence based practice in RPD
6. evidence based practice in Implantology and MFP
7. evidence based practice in esthetic dentistry
8. Basic Knowledge about how to screen literature for evidence.

G. Implants in prosthodontics:

1. Introduction to Implantology
2. Brief History and evolution.
3. DIAGNOSIS AND TREATMENT PLANNING
 - ❖ Rationale for dental Implants
 - ❖ Medical Evaluation of the Implant Patient
 - ❖ Prosthetic Options
 - ❖ Diagnostic Imaging and techniques
 - ❖ Divisions of Available Bone
 - ❖ Bone Density
 - ❖ Dental Evaluation
4. FUNDAMENTAL SCIENCE.
 - ❖ Bone Physiology and Metabolism.
 - ❖ Pharmacologic for Dental Implants
 - ❖ Bone Response to Mechanical Loads.
 - ❖ Osseo integration, bio integration and Fibrosseointegration
5. IMPLANT PROSTHODONTICS AND MAINTENANCE
 - ❖ Principles of Cement-Retained and Screw-Retained Fixed Implant Prosthodontics.
 - ❖ Occlusal Considerations for Implant-Supported and tissue supported Protheses
 - ❖ Implant supported prosthesis-clinical and lab procedures.
 - ❖ Maintenance of Dental Implants.

H. Esthetic Dentistry

1. Principles of esthetics
 - ❖ Light and Shadow

- ❖ Colour principles
 - ❖ The principle of form
 - ❖ The principle of perception.
2. Dentin bonding agents
 - ❖ Composition and clinical considerations
 3. Colour modifier and Opaquers
 4. Composite resins
 - ❖ Composition and manipulation
 - ❖ Technique for direct and indirect composite restorations
 5. Porcelain Fused to metal restorations
 6. All ceramic restorations
 7. Laminates-Clinical and Laboratory procedure for porcelain and composite laminates
 8. Bleaching
 9. Dynesthetic concept of smile.

11. Preclinical Exercises

The student would be asked to complete the following preclinical exercises in Prosthodontics in first six months.

- ❖ **Setting up of teeth in balances occlusion (Complete Denture)**
 - a. Class I Jaw Relation (Dentogenic concept)
 - b. Class II Jaw Relation
 - c. Class III Jaw Relation
 - d. Balanced class I complete denture
 - e. Break and repair of maxillary complete denture
 - f. Relining of mandibular complete denture
 - g. Immediate denture using lower dentulous and upper semi-edentulous casts with upper anterior missing.

B. Fixed

Partial Denture Work: Typodont & Laboratory:

- a. Occlusal carving using cone waxing technique on mounted casts for Maxillary and Mandibular Premolars & molars
- b. Post and core preparation on upper right Central incisor with casting and PFM crown
- c. Three quarter crown for Maxillary canine(preparation and casting)
- d. Anterior PFM 3 units FPD replacing upper right lateral incisor using modified ridge lap pontic.

- e. PFM crown on maxillary molar (preparation and casting).
- f. Laminate preparation on upper left lateral incisor with porcelain facing /Composite.
- g. Full metal crown for mandibular molar (preparation and casting)
- h. Posterior 3 Unit PFM FPD replacing right lower first molar using spheroidal pontic with 4/5 crown on preparation full crown on second molar.
- i. Maryland bridge preparation to replace lower left lateral incisor
- j. Soldering of a 3-unit metal bridge.
- k. Fabrication of a semiprecision / precision attachment retained prosthesis

C. Removable Partial Dentures

- a. Surveying, designing & wax up of one each of Kennedy's Class I,II,III, IV plaster casts.
- b. Casting finishing and polishing etc. of any one of the above.

12. Clinical Load During Training

1. Complete Dentures.	-25
2. Partial Dentures	
a. Cast partial dentures	-2
b. Interim partial dentures	-5
c. Transitional partial dentures	-5
d. Immediate dentures	-5
3. Crown	-30
a. Post Full metal crowns	-10
b. Post Full metal ceramic crown	-5
c. Ant metal ceramic crowns	-5
d. All ceramic crowns	-5
4. Fixed partial dentures	-10
5. Maxillofacial prosthesis	-05

13. ASSESSMENT

A) Periodic tests.

During the course of three years, the departments will conduct three tests, two of them by annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may

include written papers, practical/clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the University, when called for.

B) Internal assessment:

100 credit points could be spread over a period of three years as given below.

Topic	Credit points.
Seminars presented(3 credit points per seminar)	15
Seminars attended (1 per seminar)	10
Clinical case presentation and discussions (3/presentation)	15
Pre clinical work	20
Publications/oral presentation / table Presentation/poster	10
Literature review/ Journal club	10
Pase documentations with Photographs	10
Pommunity programs (old age homes /hospital patients etc).	10

14. University Examination

Eligibility

The following requirements shall be fulfilled by every candidate to become eligible to appear for final examination.

i) Attendance:

Every candidate shall have fulfilled the attendance as prescribed during each academic year of the postgraduate course. In case of failure in the final examinations of MDS, the unsuccessful candidate will have to maintain full attendance till the next scheduled exam.

ii) Progress and conduct:

Every candidate shall have participated in seminar journal review meetings, symposia conference, case presentation, clinics and didactic lectures during each year as designed by the department.

iii) Work diary and Logbook:

Every candidate shall maintain a work diary and logbook for recording his/her participation in the training programmes conducted by the department. The work diary and logbook shall be verified and certified by the Guide & Head of the Department. The Certification of satisfactory progress by the Guide, Head of Department and Head of the Institution shall be based on (i),and (ii)and (iii) as mentioned above.