

**UNMRP**  
UNIVERSITY NATIONAL MEDICAL RESIDENCY PROGRAM  
PAKISTAN

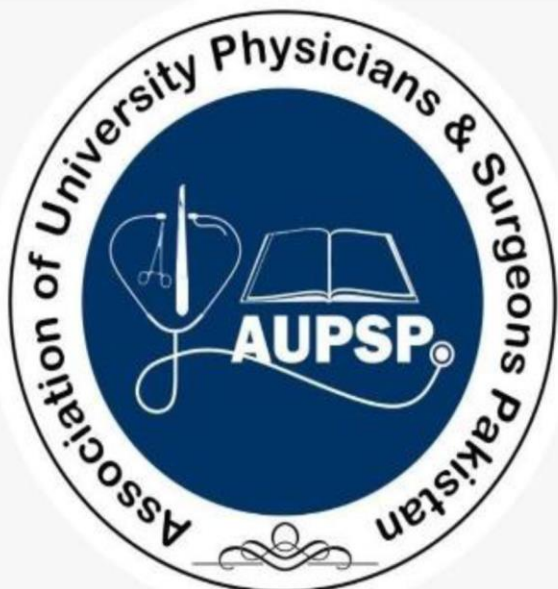
# UNIFIED CURRICULA REGISTRY MEDICAL UNIVERSITIES OF PAKISTAN

## CURRICULUM

**MASTER OF DENTAL SURGERY  
(MDS)**

**PROTHOSDONTICS**

Residential, Clinical, Stipend based, Full time



# University National Medical Residency program Pakistan

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## **University National Medical Residency program Pakistan**

### **INTRODUCTION**

Keeping in view the recent advances in Dental Education, Universities are continuously improving the standards of education in dentistry and setting the rules/regulations and curriculum of Masters in Dental Surgery (MDS).

Dentistry is dynamic discipline, constantly changing, advancing and developing therefore resulting in better approach to treatment with the ultimate result of improved oral health for all population.

MDS is the highest postgraduate clinical degree in Pakistan awarded by the various universities in the specialties of Oral and Maxillofacial Surgery, Operative Dentistry, Prosthodontics and Orthodontics respectively.

Underpinning philosophy of this course is to produce teachers, trainers, research scholars and specialists in the respective fields who can carry out research programs and teaching, training and supervision of the undergraduate and postgraduate students in the field of dentistry.

Dental Postgraduate Residents will be trained to plan the future perspective and development in the field of dentistry.

The MDS degree will be awarded to a candidate who has;

1. Completed four years of training in the respective specialty.
2. Fulfilled all the requirements laid down by the University.
3. Satisfied a panel of examiners on all levels of examinations (Intermediate and Final)
4. Successfully defended a thesis in the respective specialty.
5. One paper published/ accepted for publication with candidate as Principal Author, relevant to the specialty of training, in PMDC approved Local/International Journal.

### **ADMISSION CRITERIA AND ENTRY REQUIREMENTS:**

As approved by the Government

### **MANDATORY ENTRY REQUIREMENTS:**

- ❖ BDS from a PMDC recognized institute.
- ❖ One-year house job completed at an institution recognized by PMC/PMDC for the said purpose.

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- ❖ Should hold a Permanent Registration with PMDC.
- ❖ Passed the mandatory entry examination (JCAT or Equivalent).
- ❖ Has been recommended by the supervisor/institution after attending a formal interview.
- ❖ Any other criteria described by the University (from time to time)

### MANDATORY ENTRY EXAMINATION:

There shall be one theory paper comprising of MCQ (single best type) of Total 125 marks (3 hours). Marks distribution will be as follows:

#### **1. Basic Medical Sciences: (55 marks)**

Further distribution will be as follows:

Anatomy	17 marks
Physiology and Biochemistry	18 marks
Pathology	15 marks
Pharmacology including (Dental Pharmacology)	05 marks

#### **2. Basic Dental and Applied Sciences: (70 marks)**

Oral Biology, Histology and Tooth Morphology	05 marks
Oral Pathology	05 marks
Dental Materials	10 marks
Periodontology and Oral Medicine	10 marks
Oral and Maxillofacial Surgery	10 marks
Operative Dentistry	10 marks
Prosthodontics	10 marks
Orthodontics	10 marks

**Candidate scoring 75 % marks in entry examination shall be called for interview.**



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### **STATUTES & REGULATIONS**

#### **DURATION OF COURSE:**

Duration of course will be four years, or as described by the University and the training program will comprise of a didactic, clinical and research component.

#### **GENERAL LEARNING OUTCOMES FOR MDS COURSE:**

At the end of the 4 years of training of MDS, the candidate is expected to demonstrate following competencies:

- ❖ Life-long learner, scholar and should possess in depth knowledge about the subject in which he/she was trained and should be able to transfer this knowledge to his/her colleagues and juniors.
- ❖ A thorough professional and an expert of the field and should be able to promote evidence-based practice.
- ❖ Should possess leadership and managerial qualities and be able to lead a team and work as an effective team member, when and where needed.
- ❖ Should be able to collaborate and develop liaison with other disciplines as and when needed, in order to provide the best possible care for his/her patients.
- ❖ Should be a critical thinker and must possess a problem solving approach.
- ❖ Should act as a health advocate and be able to promote health of the general population
- ❖ Should be able to conduct independent, ethical research for the benefit of the population.

#### **SPECIFIC YEAR WISE LEARNING OBJECTIVES**

##### **A. 1<sup>ST</sup> YEAR**

1. The course objectives for the first year of training will be;  
By the end of the first year the candidate should have completed the following mandatory workshops:

- ❖ Medical Ethics and Dental Jurisprudence
- ❖ Research Methodology, Biostatistics and Medical Writing

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- ❖ Skills in Information Technology
- ❖ Communication skills and Behavioral Sciences
- ❖ Basic Life Support
- ❖ Primary Surgical Skills

*(The last 02 workshops to be completed anytime during the 4 year course. These workshops will be conducted by /RMU/FMU/UHS)*

2. The candidate should have attended libraries regularly to study research papers of last five years for all disciplines published in international journals as well as HEC recognized journals in detail in order to prepare for Intermediate Examination.
3. The candidate will improve his/her teaching skills/knowledge by delivering presentations, attending group discussions, tutorials and will expand his/her knowledge of latest international developments while attending libraries and broaden his/her horizon towards new concepts and advancements.
4. Develop research protocol for his/her thesis.
5. The candidate should learn the basic operative/clinical procedures of the respective discipline as outlined in the curriculum.

## **COURSE CONTENT FOR WORKSHOPS**

### **1. RESEARCH METHODOLOGY, BIostatISTICS AND MEDICAL WRITING:**

- ❖ Introduction to research and research requirement
- ❖ Finding and topic and getting started
- ❖ The literature review
- ❖ Theory research
- ❖ Research questions and hypothesis
- ❖ Research ethics
- ❖ Selecting study participants
- ❖ Instrumentation
- ❖ Quantitative research methods: experimental
- ❖ Quantitative research methods: non-experimental
- ❖ Qualitative research methods
- ❖ Data analysis and reporting the findings
- ❖ Conclusions, discussions and recommendations

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- ❖ Sharing your findings
- ❖ Descriptive methods
- ❖ Introduction to probability and counting
- ❖ Probability and problem solving
- ❖ Discrete random variables
- ❖ Continuous random variables
- ❖ Inferences on the mean
- ❖ Chi-squared distribution and interference on the variance
- ❖ Interference on proportions
- ❖ Comparing two means
- ❖ K-sample procedures: introduction to design
- ❖ Regression and correlation
- ❖ Categorical data
- ❖ Some additional procedures and distribution free alternatives

### **2 .MEDICAL ETHICS AND DENTAL JURISPRUDENCE:**

- ❖ Introduction
- ❖ Courts of law
- ❖ Case presentation
- ❖ The tooth and age determination
- ❖ Dental identification
- ❖ Anatomical identification
- ❖ Radiological identification
- ❖ Archaeological identification
- ❖ Mass disaster identification
- ❖ Bite marks
- ❖ Ethical issues related to practice of dentistry

### **3. COMMUNICATION SKILLS AND BEHAVIOURAL SCIENCES:**

- ❖ Bio-psycho-social model of behavior in health and illness
- ❖ Major psychological theories of human behavior
- ❖ Human development
- ❖ Biological basis of behavior.
- ❖ Clinical applications.
- ❖ Communication and interviewing.
- ❖ Conflict resolution.
- ❖ Techniques for managing various patient behaviors in clinical environment.
- ❖ Behavioral management of pediatric patients

### **4. SKILLS IN INFORMATION TECHNOLOGY:**

- ❖ Introduction to computer usage
- ❖ Basics of using Microsoft office including MS Word, MS Power Point, MSEXcel.

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- ❖ Introduction to search engines for medical research like Pubmed Central, GoogleScholar, Scopus, Elsevier etc.
- ❖ Introduction to usage of SPSS software
- ❖ Introduction to soft wares for online teaching like Zoom, MTL, Skype, Socrative etc.

### B. 2<sup>nd</sup> YEAR

- ❖ Should complete mandatory rotations in all Clinical Departments (02 months each) to meet requirements for Intermediate Examinations.
- ❖ The candidate must take part in teaching and training activities of the departments in which they will be working on rotation.
- ❖ The candidate will work in the relevant dentistry specialty and will be working on the topic of his/her research project so that the synopsis is submitted well in time for approval.
- ❖ The student should be able to manage patients according to the competency level required at his/her stage of training. He/she should be able to recognize and differentiate various clinical dental pathologies and should be able to suggest their diagnosis, prevention, and treatment.
- ❖ Candidate has to submit his synopsis before the end of 2<sup>nd</sup> year and get it approved by the synopsis and ethical review committee of university by appearing/presenting/defending in front of Advanced Standing Committee of Research of the University.
- ❖ Should regularly update his/her log book and should get it signed by the supervisor.

### MANDATORY ROTATIONS:

Two months of elective rotations to be completed during the second, third and final years of training in the following departments:

Department	Elective Rotations					
	1	2	3	4	5	6
<b>Years Of Training In The Following Departments:</b>						
Oral & Maxillofacial Surgery	Anesthesia & ICU care	General Surgery	ENT	Neurosurgery	Plastic Surgery	Prosthodontics/ Orthodontics
Oral & Maxillofacial Surgery	Anesthesia & ICU care	General Surgery	ENT	Neurosurgery	Plastic Surgery	Prosthodontics/ Orthodontics

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Oral & Maxillofacial Surgery	Anesthesia & ICU care	General Surgery	ENT	Neurosurgery	Plastic Surgery	Prosthodontics/ Orthodontics
Oral & Maxillofacial Surgery	Anesthesia & ICU care	General Surgery	ENT	Neurosurgery	Plastic Surgery	Prosthodontics/ Orthodontics

*Optional rotation*

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### **INTERMEDIATE EXAMINATION (IME):**

After completion of 2 years of training, candidates fulfilling the following requirements in the course will appear in Intermediate Examination (IME) comprising of

#### **General Dentistry and Specialty Examination:**

- ❖ The examination will be held twice a year.
- ❖ Only those candidates are eligible to appear who have fulfilled all the mandatory requirements

#### **MANDATORY REQUIREMENTS TO APPEAR IN IME:**

- ❖ Synopsis approved from synopsis review committee
- ❖ Updated log book duly signed by the supervisor (*including the cases observed and assisted during rotations*).
- ❖ Certificate of teaching, training and satisfactory clinical work from supervisor.
- ❖ Certificate of attendance of Mandatory workshops.
- ❖ At least 90% Attendance in Clinics and Academic activities, verified by the supervisor.

#### **FORMAT FOR THE INTERMEDIATE EXAMINATION (IME):**

The Intermediate Examination will comprise of 02 components:

Written and TOACS/OSCE Examination. Details are as follows:

**I. Written Examination: (200 marks)**

Two papers, three (03) hours duration each, consisting of 50 MCQs (SBA type) and 10 SAQs (05 marks each).

**Paper A: Principles and Practice of General Dentistry (100 marks)**

(Will be same for all the candidates of various disciplines of MDS)

**Paper B: Specialty Examination (100 marks)**

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*Candidate acquiring at least 75% marks in each paper will be declared successful.*

### **II. TOACS/OSCE Examination: (100 marks)**

Candidates who have passed written component of the Intermediate Examination will appear in TOACS/OSCE examination which will comprise of 10 stations (10 marks each).

#### ***Criteria for TOACS/OSCE Examination:***

- ❖ Each Station will be of 06 minutes' duration.
- ❖ All the stations will be observed by at least one examiner.
- ❖ Preferably all stations should be dynamic and interactive however a maximum of 02 stations can be static only.
- ❖ In order to be declared successful, a candidate has to acquire 75% marks.
- ❖ Two (02) or Three (03) rest stations can be included as per requirement however they will not be marked.

### **C. 3<sup>RD</sup> YEAR**

The candidate will work on research project and improve his/her clinical skills in all fields of respective specialty and meet criteria of international standards and day to day developments in procedures, materials, equipment and in all aspects of expanded knowledge of their specialty and should maintain his/her logbook.

### **D. 4<sup>TH</sup> YEAR**

- ❖ Candidate will continue to improve and expand his knowledge and teaching and training, clinical skills and awareness about international standards and requirements.
- ❖ Candidate will complete his research work before the mid of his 4<sup>th</sup> year and complete thesis for partial fulfillment of MDS degree
- ❖ The candidate must submit his/her thesis at least 04 months prior to the date of final examination.
- ❖ The logbook should be complete and duly signed by the

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supervisor, before appearing in the final examination.

### **FINAL MDS EXAMINATION:**

Candidate who has completed 4 years of training and fulfilled all the requirements in the course will be allowed to appear in final examination.

- ❖ The examination will be held twice a year.
- ❖ Only those candidates are eligible to appear who have fulfilled the following requirements

### **MANDATORY REQUIREMENTS FOR FINAL EXAMINATION**

- ❖ Should have complete 48 months of full time training with at least 90% attendance in teaching, training and clinical activities, duly signed by the supervisor.
- ❖ Should have passed Intermediate Examination.
- ❖ *MDS thesis, approved by University.*
- ❖ One (01) paper published/ accepted for publication in PMC/PMDC approved Local/International Journal with candidate as Principal Author, relevant to the specialty of training.

### **FORMAT OF THE FINAL EXAMINATION**

The final MDS Examination will be held twice a year and will consist of two components, written and clinical.

#### **I. Written Examination: (200 marks)**

The written examination will comprise of two papers, each of three (03) hours duration.

Paper 1- 10 Short Answer Questions (10 marks each) 100 Marks

Paper 2- 10 Short Answer Questions (10 marks each) 100 Marks

***Candidate acquiring 75% marks in each paper will be declared successful.***



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### II. Clinical Examination: (200 marks)

Those candidates who have passed the written component will be allowed to appear in the clinical examination. The format for the clinical examination will be as follows:

- |                          |               |                          |
|--------------------------|---------------|--------------------------|
| 1) One long case         | (60 min)      | 60 Marks                 |
| 2) Five short cases      | (10 min each) | 40 Marks (10 Marks each) |
| 3) Viva voice            | (30 min)      | 60 Marks                 |
| 4) Portfolio of 04 cases | 40 Marks      | (10 Marks each)          |

### Criteria for Final Examination:

- ❖ For the long case, 30 minutes will be provided to the candidate for case preparation and 30 minutes will be specified for case presentation, discussion of findings, diagnosis and description of treatment plan with examiners.
- ❖ In the short cases, the candidate will be provided with an unseen clinical case and he/she will be directed towards a specific task. Five out of ten minutes will be allocated for the examination/performance of task and the rest of the five minutes will be allocated for discussion with the examiners.
- ❖ During each section of the clinical exam, the candidate will be assessed by a set of two (02) examiners who will mark him/her separately.
- ❖ The candidate has to submit a portfolio, not exceeding 2000 words, comprising of 04 cases, with complete records, done by the candidate under direct supervision, during the course of training. The supervisor must verify that the cases were done under his/her direct supervision.

### III. THESIS DEFENCE (100 MARKS)

The candidate has to submit his thesis to the University who will forward it to 02 independent examiners for evaluation. Once the thesis gets approved by the evaluators, the candidate will present the findings of his thesis in front of a panel of examiners. Total duration of thesis defense will be 30 minutes. Out of these 30 minutes, 10 min will be specified for presentation by the candidate and 20 min will be specified for discussion of findings/results with the examiners. A student acquiring 75% marks in the thesis defense will be declared successful.

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### **THESIS SUBMISSION GUIDELINES:**

- ❖ The thesis must be bound in accordance with the specifications, as will be specified by the board.
- ❖ It must form a distinct contribution to knowledge with evidence of originality, shown either by the discovery of new facts or by the exercise of independent critical judgment.
- ❖ It must not include research work for which degree has been conferred in this or any other university.
- ❖ Any part of the thesis which has been published before submission of thesis should be appended at the end of thesis.
- ❖ The minimum duration between approval of synopsis of research and submission of thesis should be appended at the end of the thesis and it should not be less than one year.
- ❖ Four (4) copies of the thesis must be submitted.
- ❖ The thesis will be submitted along with bank challan form paid in account of university of health sciences.
- ❖ Application for thesis evaluation recommended by the supervisor.

### **THE EVALUATION AND DEFENSE OF THE THESIS:**

- ❖ The board of studies will suggest a panel of external examiners for evaluation of thesis. The thesis will be examined by two examiners.
- ❖ Each of the examiners will be provided a copy of the thesis.
- ❖ The controller of examination shall get the thesis evaluated within four months after submission/ re-submission of the thesis.
- ❖ The candidate will present his research before the panel of examiners in the presence of supervisor/ co-supervisor on a fixed date and will successfully defend his thesis to be eligible for certificate.
- ❖ No degree shall be awarded unless all examiners recommend the award of degree.
- ❖ If one of the external examiners approves the thesis, and others rejects, it shall be sent to a third examiner for evaluation. If the third examiner approves the thesis, the candidate shall be

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recommended for the reward of MDS degree, otherwise he shall be declared to have failed.

- ❖ In case of modifications/ revision of thesis, the candidate will re-submit a revised version with fresh fee.
- ❖ If the candidate fails to satisfy the examiners in the defense then he/ she will have to defend the thesis for a second and final time within a period of six months.

### **AWARD OF MDS DEGREE:**

After successful completion of the structured course, qualifying final examination and thesis approval/defense, MDS degree with title of the specialty in parenthesis will be awarded.

**GENERAL STANDARDS**

**THE UNIVERSITY AND AFFILIATED INSTITUTIONS WILL BE RESPONSIBLE TO:**

- ❖ Establish general policies of postgraduate dental education.
- ❖ Conduct internal reviews of the MDS course.
- ❖ Establish supervising policies for selection, evaluation, promotion and dismissal of candidates in the programs.
- ❖ Establish policies to ensure adequate supervising of candidates in order to protect and preserve the best interest of the patient, the students of the undergraduate course, the attending dental surgeon and the candidates. The components of the supervision of the candidates include:
  - i. Supervision while the candidates are involved in applied work in their special subject including patient care/ teaching of students.
  - ii. Assurance of progressive competence of the candidates for graded independent performance.
  - iii. Policies regarding the physical presence of the attending dental surgeon during actor procedures performed by the candidates.
- ❖ Ensuring the MDS course addresses the required general skills of dental practice/ teaching:
  - i. The function of the committee of specialty faculty in which MDS course is run may be facilitated by means of subcommittees (e.g. Curriculum Committee, Accreditation Committee etc.). The committee and subcommittees, if any, must meet regularly and minutes must be kept.
  - ii. There must be Faculty Development Program comprising of workshops and refresher courses for supervisors and co-supervisors so that they are adequately trained for the job and stay up to date.

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### **SITES FOR POSTGRADUATE DENTAL EDUCATIONS:**

In all educational sites, the staff involved in postgraduate dental education must hold appointment acceptable to the University.

- ❖ All new educational sites will be visited and approved by the faculty of the specialty of the university.
- ❖ All educational sites will undergo inspection every three year by the faculty of the relevant specialty of the university.
- ❖ A list of minimum acceptable facilities which are required for training of candidates for a specific course will be developed by the committee of the faculty of the specialty. The educational sites will provide these facilities for training of candidates.
- ❖ At all educational sites, accurate and complete medical records of all patients must be kept. Departments must ensure that candidates take part in completion of these documents.
- ❖ All educational sites must be actively involved in a formal quality assurance/ improvement program, including reviews of complications and treatment failures.
- ❖ The number of candidates which can be admitted/ enrolled in these education sites will be fixed by the faculty of same specialty.
- ❖ The date for the visit of accreditation committee is proposed by the head of the department/unit.
- ❖ All new educational sites departments /units will be visited and inspected by the accreditation sub-committee of the committee of the specialty faculty.

### **ADMINISTRATIVE STRUCTURE:**

- ❖ There must be a supervisor, with the qualification and experience that is acceptable to the University, who will be responsible for the overall conduct of the integrated post graduate dental education.
- ❖ The change in supervisor can be allowed by the university after looking into justification on case-to-case basis.
- ❖ There must be a committee of each specialty faculty of the University of Health Sciences; to assist the supervisors in the planning, organization and supervision of the course.
- ❖ The committee of each specialty faculty is responsible to revise its curriculum every five years, and re inspect approved education sites every three years.

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### **GOALS AND OBJECTIVES:**

- ❖ There must be a statement of overall goals of the course.
- ❖ There must be specific education objectives with respect to knowledge, skills, and attributes for each module, rotation or other educational experience.
- ❖ The statement of goals and objectives should be reviewed periodically by the committee of specialty.

### **ORGANIZATION OF THE COURSE:**

- ❖ There must be an organized program of rotations and other educational experience, designed to provide each candidate with opportunity to fulfill the educational requirements and achieve competence in the specialty.
- ❖ The course must be so organized that candidates are given professional responsibility under appropriate supervision according to their level of training, ability and experience.
- ❖ At some point in the course, under appropriate supervision each candidate must assume role to educate his junior candidates.
- ❖ Service responsibilities and on call duties must be assigned in a manner which assure that candidates are able to attain their educational objectives.
- ❖ Service demands must not interfere with the ability of the candidate to follow the academic program.

### **RESOURCES:**

The faculty of the specialty is responsible to determine the resources of its course.

- ❖ There must be a sufficient number of qualified teaching staff to provide appropriate teaching and supervision of the candidates.
- ❖ The number and variety of patients of both genders must be sufficient to meet the educational needs.
- ❖ The teaching staff must exercise the responsibility of providing high quality ethical patient care, laboratory work and excellent teaching.
- ❖ There must be an experience-based learning process.
- ❖ There must be an easy access to learning resource department for collection of appropriate Texts and Journals during evenings and weekends also.

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- ❖ The physical and technical resources available to the program must be adequate to meet the needs of the course.

### **ACADEMIC AND SCHOLARLY ASPECTS OF THE COURSE:**

The academic and scholarly aspect of the course must commensurate with the concept of a university postgraduate education. The quality of scholarship in the course will in part be demonstrated by a spirit of enquiry.

- ❖ To organize scholarly activities such as journal clubs, research conference and seminars.
- ❖ The academic program must include organized teaching in basic and clinical sciences relevant to the specialty.
- ❖ The candidate must be given opportunities to develop effective teaching skills by teaching junior colleagues and students, as well as through conference presentations, clinical and scientific papers and patient education.
- ❖ Satisfactory level of research and scholarly activity must be maintained among the faculty identified with the course.
- ❖ To improve skills in self-assessment and self-directed lifelong learning, outside the University.

### **EVALUATION OF PERFORMANCE OF CANDIDATE:**

- ❖ The in-training evaluation system must be based on the goals and objectives of the course and must clearly identify the methods by which residents are to be evaluated.
- ❖ Knowledge should be assessed using appropriate written and oral examinations as well as by direct observations.
- ❖ Clinical /teaching skills should be assessed by direct observations.
- ❖ Communication skills should be assessed by direct observations of candidate, interaction with patients, students, their family and colleagues.
- ❖ Interpersonal skills should be assessed in collaboration with all other members of the patient care team.
- ❖ Teaching skills should be assessed by written student evaluation, and by direct observation of the resident in seminars lectures and case presentations.
- ❖ Attitude should be assessed by interviews with the peers, supervisors, allied health persons, patients and their families.
- ❖ There must be helpful and honest feedback to the candidate.
- ❖ A final training report must be provided by the supervisor of

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the university for each candidate who is eligible to sit the final examination of the university.

### **LENGTH OF THE COURSE:**

- ❖ Minimum duration of the course of MDS will be four years.
- ❖ The duration can further be altered by concerned board of studies on the recommendations of the committee of specialty faculty of subject.
- ❖ The supervisor determines the timings of the rotations and postings and their educational content.
- ❖ Candidate enrolled in the MDS course for research can spend minimum of 12 months in basic laboratory.

### **QUALIFICATION OF THE SUPERVISOR**

- ❖ The supervisor of MDS course must have MDS or equivalent (FCPS) qualification and can be an Assistant/Associate or Professor of that field.
- ❖ If a supervisor is not available in the institution co-supervisor having MDS qualification can supervise with supervision of supervisor in any other institution (institution can utilize services of retired professors)
- ❖ “HEC letter No DD-QA/HEC/NQAC/2015/125 dated February 27,2015. As per revised policy, a supervisor can supervise a total of twelve (12) MS/M.Phil/PhD students at a time with no more than five (05) of these students being PhD (MDS) students”. Revised policy is effective from March 16, 2015.

### **QUALIFICATION OF CO-SUPERVISOR**

- ❖ The co-supervisor will have the same level of academic qualification as that of the supervisor.
- ❖ The co-supervisor will be assigned candidates by the supervisor.

### **RESPONSIBILITIES OF THE INSTITUTION FOR TRAINING**

- ❖ The director of the postgraduate dental education will assist the dean/principal to run the postgraduate education in the institution.
- ❖ The training review committee of the institution/department will address the complaints of the trainees.
- ❖ The institution /department must arrange proper duty rooms/ duty stations for trainees.



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- ❖ The institution/ department arrange inspection (accreditation) of each department/unit every 3 years.
- ❖ The institution/department must participate in revision of the curriculum at least every 5 years.

### **RESPONSIBILITIES OF THE SUPERVISOR**

- ❖ The supervisor must ensure the provision of adequate facilities, teaching staff, teaching armamentarium, dental clinic facilities, education resource materials and research facilities.
- ❖ The supervisor must ensure that the residents should participate in direct patient care of laboratory work regularly.
- ❖ The supervisor must monitor each candidate performance and progress in the development of the cognitive and technical skills, ethics and effective qualities needed by the specialist/ teacher in his specialty.
- ❖ It is the supervisor's responsibility to counsel, ensure or after due process to dismiss a candidate who fails to demonstrate appropriate competence, reliability or ethics.
- ❖ The supervisor must maintain continuous assessment of resident's performance. The documents must be provided on request to the members of the inspection committee of the concerned faculty of specialty of the University.

### **RESPONSIBILITIES OF THE TEACHING STAFF:**

It is responsibility of the teaching staff to:

- ❖ Ensure that the structure and content of the prescribed courses and curriculum is practiced
- ❖ All three faculty members (professors, associate professors and assistant professor) in unit/department must devote a minimum of 20 hours a week to the training of the candidates.
- ❖ The teaching staff must participate in appropriate scientific societies, pursue their own continuing education, and demonstrate an active interest in related research.

### **NUMBER OF CANDIDATES IN EACH DEPARTMENT /UNIT (EDUCATIONAL SITE)**

The department may have one additional trainee each year as deemed fit by the professor.

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### **GENERAL SKILLS AND LEARNING OBJECTIVES FOR MDS COURSE**

#### **COGNITION**

The candidate should be able to:

- ❖ Demonstrate thorough and in-depth knowledge of the discipline and should be able to relate how body function gets altered in diseased states.
- ❖ Assess new medical knowledge & scientific discoveries and apply it to institutional setting.
- ❖ Develop skills enabling him/her to become a lifelong learner.
- ❖ Foster the habit of self-education and reflection in order to update knowledge and skills and as a commitment to continuing education.

#### **SKILLS**

##### **a. WRITING SKILLS:**

The candidate should be able to:

- ❖ Correctly write updated medical records, which should be clear, concise and accurate.
- ❖ Write clear management plans and able to write discharge summaries and referral letters.
- ❖ Demonstrate competence in academic/medical writing.

##### **b. COMMUNICATION SKILLS:**

The candidate should be able to:

- ❖ Establish professional relationships with patients and their relatives in order to obtain a history conduct a physical examination and provide appropriate management.
- ❖ Demonstrate usage of appropriate language in seminars, bedside sessions, outpatients and other working situations
- ❖ Demonstrate the ability to communicate clearly, considerately and sensitively with patients, their relatives, other health professionals and routine life.

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### **c. CLINICAL AND PATIENT MANAGEMENT SKILLS:**

The candidate should be able to:

- ❖ Take pertinent history and perform accurate physical examination of patients.
- ❖ Interpret physical, clinical and associated diagnostic situation.
- ❖ Interpret and integrate the history and examination findings and arrive at an appropriate differential & definite diagnoses
- ❖ Demonstrate competence in problem identification, analysis and management of the problem at hand by the use of appropriate resources and interpretation of lab results.
- ❖ Apply the knowledge of therapeutic interventions used in the field of his/ her specialty for patient management.
- ❖ Perform routine clinical procedures of his/her specialty with expertise.
- ❖ Prioritize different problems within a time frame.

### **d. RESEARCH SKILLS:**

The candidate should be able to:

- ❖ Demonstrate principles of evidence-based medicine/dentistry and be able to utilize evidence-based guidelines in research and practice.
- ❖ Conduct research individually by using appropriate research methodology & statistics.
- ❖ Correctly guide others in conducting research by advising about study designs, research methodology and statistical methods that are applicable.
- ❖ Interpret and use results of various research articles of renowned journals.

### **e. MISCELLANEOUS SKILLS:**

The clinical training of students will be carried out under the following strategies:

- ❖ Lectures
- ❖ Seminars

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- ❖ Workshops
- ❖ Case presentation

### **i. LECTURES**

The student will impart clinical skills with his colleagues and juniors for at least 18 hours a week and will design and deliver at least 60 lectures to the undergraduate/postgraduate students during the four-year course.

### **ii. EMINARS**

The candidate must have adequate knowledge of the latest research, be able to correlate it with clinical practice and must be aware of the current developments in the field. In order to achieve this, the candidate must attend regular seminars and journal club meetings (at least one JCM/week and one seminar/month).

### **iii. CASE PRESENTATIONS**

In order to develop presentation skills, the candidate should be regularly presenting cases in Out Patient Departments/Indoors and should be regularly engaged in case-based discussions (CBD) as well.

## **ATTITUDES**

The candidate should be able to:

- ❖ Establish a positive relationship with all patients in order to ease illness and suffering by promoting counseling.
- ❖ Facilitate the transfer of information important to the management and prevention of diseases.
- ❖ Demonstrate awareness of bio-psycho-social factors in the assessment and management of patients.
- ❖ Interest of the patient and the community should be paramount consideration and these interests are never subservient to one's own personal or professional interest.
- ❖ Demonstrate respect for every human being irrespective of ethnical & cultural background and socioeconomic status and religion and

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should be able to treat all patients in a non- discriminatory and prejudice-free manner.

- ❖ Demonstrate professional and empathetic attitude towards his/her patients and colleagues.

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### **COMPETENCY BASED CURRICULUM OF MASTERS IN DENTAL SURGERY IN PROSTHODONTICS**

Prosthodontics is a discipline of clinical dentistry which deals with the restoration and rehabilitation of the lost oral, dental and facial hard and soft structures through the use of removable, fixed or hybrid prosthesis

#### **PROGRAM MISSION:**

The mission of the Prosthodontic residency program is to provide progressive clinical, laboratory and didactic training, closely supervised, at the post-graduate level in fixed, removable, and implant prosthodontics. Occlusion, temporomandibular dysfunction, maxillofacial prosthodontics & the interrelation (interdisciplinary) of other medical/dental clinical specialties along with the role of the prosthodontist is also included. The program integrates all facets of the biomedical sciences with a comprehensive clinical experience.

#### **PROGRAM OUTCOMES:**

- ❖ Graduate students/residents in an advanced education program in prosthodontics will be able to provide the following treatment modalities:
- ❖ Comprehensive diagnosis and treatment planning.
- ❖ Restoration of patients with partial or complete edentulism.
- ❖ Restoration of patients requiring complete mouth rehabilitation.
- ❖ Prosthodontic restoration of groups with special needs such as ectodermal dysplasia, maxillofacial defects and complex medical conditions.
- ❖ Restoration of patients with dental implants.
- ❖ Diagnosis and treatment of patients with disorders of the temporomandibular joints

#### **PROGRAM OUTLINE**

The scheme of studies is as follows:

As per discussed in general statutes and regulations.

#### **COURSE OF STUDY**

##### **A. AIMS**

Course aims to equip a graduate to:

- ❖ Be capable of assessing a patient's general dental health, have knowledge of relevant disease process and to be able to formulate a comprehensive treatment plan, including preventive care for

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adult patients with compromised dentition.

- ❖ Undertake completely on the basis of experience gained during the course, clinical procedures of prosthodontics, including use of new restorative materials, surgical and non-surgical prosthodontics and to understand the relevant dental materials.
- ❖ Have a sound knowledge of the scientific basis for various treatment options and to be able to integrate theoretical and practical knowledge in respect of management of adult patients.
- ❖ The research project and thesis will prepare the candidate in scientific methodology so as to be equipped to critically analyze the literature.
- ❖ It will prepare a candidate for a career in clinical dentistry, research and teaching.
- ❖ Educate students to become proficient in the delivery of operative care.
- ❖ Prepare students to grow professionally and become emissaries for the school of dentistry,
- ❖ The dental profession and the specialty of prosthodontics.

### B. MODULES

There will be total of eight modules in a duration of four years.

MODULE NO.	MODULE TITLE
Module 1	Removable Complete Dentures
Module 2	Removable Partial Denture
Module 3	Fixed Prosthodontics
Module 4	Tooth Wear / Tooth Surface Loss
Module 5	Maxillofacial Prosthodontics
Module 6	Occlusion & Temporomandibular Joint Disorders
Module 7	Implant Prosthodontics
Module 8	Prosthodontic Management of Syndromic Patients

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## MODULE 1

### REMOVABLE COMPLETE DENTURES

#### OBJECTIVES

The trainees at the end of the module should be able to:

- ❖ Identify the normal anatomy and physiology of the edentulous state.
- ❖ Identify the systemic health of the patient.
- ❖ Identify the changes in the soft and hard tissues with age.
- ❖ Should be able sequel by wearing complete denture.
- ❖ Take the history, diagnose and formulate the treatment plan.
- ❖ Formulate the treatment plan.
- ❖ Identify the material used for edentulous patient.
- ❖ Identify the substitute for denture bearing area.
- ❖ Record jaw relation and transfer it to articulator.
- ❖ Select the artificial teeth and to arrange them.
- ❖ Try in the complete denture.
- ❖ Identify the problems during insertion and follow-up appointments.
- ❖ Design immediate denture over-denture and single denture.
- ❖ Reline, repair and duplicate the complete denture.
- ❖ Identify the problems of speech with complete denture.
- ❖ Know the science of osseointegration.
- ❖ Design the implant over-denture.
- ❖ Design the fixed full arch implant supported prosthesis for edentulous patient.
- ❖ Design the immediately loaded complete dental prostheses.
- ❖ Formulate the treatment plan for implant prosthodontics.

#### TOPICS

- ❖ Complete denture prosthesis - terminology, g.p.t., Boucher's clinical dental terminology.
- ❖ The edentulous state
- ❖ Systematic health aspect and nutritional consideration for edentulous patient
- ❖ The aging edentulous patient
- ❖ Squeal caused by wearing complete denture
- ❖ History taking, treatment planning and improving denture bearing areas for edentulouspatient
- ❖ Additional treatment planning option for both edentulous and potentially edentulouspatient
- ❖ Material used in management of edentulous patient



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- ❖ Maxillary and mandibular substitute for denture bearing area
- ❖ The denture 'polished surface recording jaw relation and transfer to articulator
- ❖ The occlusal surface the selection and arrangement of artificial teeth
- ❖ The try-in appointment
- ❖ Prosthetic insertion and follow-up appointments
- ❖ Modified protocol for immediate denture over denture and single denture
- ❖ Prolonging the useful life of complete denture, reline, repair and duplication
- ❖ Speech consideration with complete denture
- ❖ The science of Osseo integration
- ❖ Implant over denture
- ❖ Fixed full arch implant supported prosthesis for edentulous patient
- ❖ Immediately loaded complete dental prostheses
- ❖ Current & Future trends in implant prosthodontics

### MODULE 2:

#### REMOVABLE PARTIAL DENTURE:

##### OBJECTIVES

The trainees at the end of the module should be able to:

- ❖ Classify the partially edentulous arches.
- ❖ Take history and to identify the normal anatomy of denture bearing area.
- ❖ Identify the principles of biomechanics of removable partial denture design.
- ❖ Identify the components of RPD - major connector - mandibular and maxillary, minor connectors.
- ❖ Identify and address the first diagnostic problems.
- ❖ Identify and address the second and subsequent problems in RPD treatment planning and execution.
- ❖ Design I-bar RPD where required.
- ❖ Design the direct retainer- internal attachment, extra coronal direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing - reciprocal clasp.
- ❖ Identify the criteria for clasp design.
- ❖ Design indirect retainer.

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- ❖ Design tooth supported, and tooth and tissue supported RPD
- ❖ Design preparation of mouth for removable partial dentures-oral surgical preparation and objectives of periodontal therapy.
- ❖ Identify the impression materials and procedures for removable partial dentures.
- ❖ Take preliminary impression, jaw relations and articulation.
- ❖ Design guiding planes and use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base.
- ❖ Survey the diagnostic and master cast.
- ❖ Identify the final path of placement and factors that determine path of placement and removal.
- ❖ Survey and design the RPD.
- ❖ Identify laboratory procedure for framework construction.
- ❖ Identify the initial placement and adjustment of the removable partial denture - adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow-up services.
- ❖ Identify laboratory procedures - duplicating a stone cast, waxing the partial denture framework, anatomic replica patterns, spruing, investing, burnout, casting and finishing of the partial denture framework and metal try-in.
- ❖ Identify the biomechanics of RPD in maxillofacial defect patients.
- ❖ Identify the Kennedy's class for altered cast technique.
- ❖ Design interim, transitional and treatment prosthesis.
- ❖ Reline and rebase the removable partial denture.
- ❖ Repair removable partial dentures.
- ❖ Manage the failed restorations.

### TOPICS

- ❖ Classification of partially edentulous arches-
- ❖ Patient assessment, history and examination- partial denture equation, anatomy of denture bearing area.
- ❖ Scope, definition and terminology,
- ❖ Principles of removable partial denture design - bio mechanical considerations,

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- ❖ Components of RPD - major connector - mandibular and maxillary, minor connectors,
- ❖ The first diagnostic problem
- ❖ The second diagnostic problem
- ❖ I-bar removable partial denture
- ❖ Management of failed restorations.
- ❖ Direct retainer- internal attachment, extra coronal direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing - reciprocal clasp.
- ❖ Criteria for selecting a given clasp design,
- ❖ Indirect retainer,
- ❖ Tooth supported, and tooth and tissue supported RPD,
- ❖ Preparation of mouth for removable partial dentures-oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation - objectives of periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery
- ❖ Impression materials and procedures for removable partial dentures,
- ❖ Preliminary impressions, jaw relations and articulation
- ❖ Guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base,
- ❖ Surveying - description of dental surveyor, purposes of surveying, aims and objectives in surveying of diagnostic cast and master cast.
- ❖ Final path of placement, factors that determine path of placement and removal.
- ❖ Survey and design
- ❖ Laboratory procedure for framework construction
- ❖ Initial placement and adjustment of the removable partial denture - adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow - up services
- ❖ Laboratory procedures - duplicating a stone cast, waxing the partial denture framework, anatomic replica patterns, Spruing,

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investing, burnout, casting and finishing of the partial denture framework and metal try-in.

- ❖ Removable partial denture considerations in maxillofacial prosthetics
- ❖ Altered cast technique
- ❖ Interim, transitional and treatment prosthesis
- ❖ Relining & rebasing the removable partial denture-relining tooth supported dentures bases, relining distal extension denture bases, reestablishing occlusion on a relined partial denture.
- ❖ Repairs and additions to removable partial dentures

### MODULE 3:

#### FIXED PROTHOSONTICS

##### OBJECTIVES

- ❖ The trainees at the end of the module should be able to:
- ❖ Take history and examine the oral cavity, formulate the treatment plan and mouth preparation including principals of occlusion and periodontal considerations
- ❖ Identify the patient's desires, expectations and needs. Systemic and emotional health.
- ❖ Examine head and neck, oral - teeth, occlusal and periodontal clinically
- ❖ Design preparation of diagnostic cast, interpret radiographic, aesthetics, endo-dontics considerations.
- ❖ Examine crown morphology, TMJ and muscles of mastication and formulate comprehensive planning and prognosis.
- ❖ Select the abutment for fixed prosthesis- bone support, root proximities and inclinations, selection of abutments, for cantilever, pier abutments, splinting.
- ❖ Identify principles of tooth preparations, tissue management, impression making and instrumentation
- ❖ Design fixed prosthesis and identify material selection, and

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biological and mechanical considerations.

- ❖ Design the retainer and precision attachments -custom made and ready made
- ❖ Design preparation of crowns, cast metal, metal ceramic crowns, all ceramic crowns, partial veneer crowns, three quarter crowns, inlays and on lay preparation.
- ❖ Restore endo-dontically treated teeth
- ❖ Design interim fixed restorations.
- ❖ Record inter occlusal relationship.
- ❖ Evaluate, characterization and glazing of restoration.
- ❖ Identify types of luting agents and cementation procedure.
- ❖ Identify post-insertion complaints.

### TOPICS

- ❖ History taking, clinical examination, diagnosis, treatment planning and mouth preparation including principals of occlusion and periodontal considerations.
- ❖ Patients desires, expectations and needs. Systemic and emotional health.
- ❖ Clinical examinations - head and neck, oral - teeth, occlusal and periodontal.
- ❖ Preparation of diagnostic cast, radiographic interpretation, aesthetics, endodontics considerations.
- ❖ Crown morphology, TMJ and muscles of mastication and comprehensive planning and prognosis.
- ❖ Abutment selection - bone support, root proximities and inclinations, selection of abutments, for cantilever, pier abutments, splinting.
- ❖ Principles of tooth preparations, tissue management, impression making and instrumentation.
- ❖ Design, material selection, and biological and mechanical considerations -retainer and precision attachments -custom made and ready made
- ❖ Preparation of crowns, cast metal, metal ceramic crowns, all

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ceramic crowns, partial veneer crowns, three quarter crowns, inlays and on lay preparation.

- ❖ Restoration of endodontically treated teeth.
- ❖ Interim fixed restorations.
- ❖ Interocclusal records, laboratory support for fixed prosthodontics, occlusal equilibration, articulators, recording and transferring of occlusal relations.
- ❖ Evaluation, characterization and glazing of restoration
- ❖ Types of luting agents and cementation procedure.
- ❖ Post-operative care.

### MODULE 4:

#### TOOTH WEAR / TOOTH SURFACE LOSS:

##### OBJECTIVES

- ❖ The trainees at the end of the module should be able to:
- ❖ Identify the tooth wear
- ❖ Manage tooth wear
- ❖ Identify materials for restoring tooth wear
- ❖ Accurately record the occlusion including competency in using face bow and articulation and understand when these techniques are applicable.
- ❖ Identify the need for provisionalization
- ❖ Identify adhesive cements for cementation of FPD
- ❖ Identify the inter occlusal records
- ❖ Identify the relevant dental anatomy and tooth proportion involved in smile design.
- ❖ Identify use of direct composite layering techniques for managing alterations in tooth color and morphology

##### TOPICS

- ❖ Presentation, Etiology & Management strategies of different types of Tooth wear
- ❖ Appropriate techniques, materials and technologies available to manage tooth wear.
- ❖ Select the appropriate material for direct and indirect restorations.
- ❖ Accurately record the occlusion including competency in using face bow and

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- ❖ articulation and understand when these techniques are applicable.
- ❖ Provide appropriate provisional restorations.
- ❖ Fit restorations using appropriate adhesives or cements ensuring that appearance, occlusion, and function are in harmony with the remaining dentition and patient's wishes.
- ❖ Recognize the relevance and inter-relationship of adhesive and conventional restorations in the prosthodontics treatment of tooth wear.
- ❖ Relevant dental anatomy and tooth proportion involved in smile design
- ❖ Use of direct composite layering techniques for managing alterations in tooth color and morphology.

### MODULE 5:

#### MAXILLOFACIAL PROSTHODONTICS

##### OBJECTIVES

The trainees at the end of the module should be able to:

- ❖ Carry out psychological management of maxillofacial prosthetic patient
- ❖ Manage the radiation therapy patient: treatment planning and post-treatment care
- ❖ Identify the resin bonding for maxillofacial prosthesis
- ❖ Manage naso-alveolar defects in early management of cleft lip and palate
- ❖ Manage edentulous & dentate maxillectomy patients clinically
- ❖ Manage soft & hard tissue defects clinically
- ❖ Identify the impact of endosseous and facial implant on Maxillofacial prosthesis
- ❖ Manage the mandibulectomy patients prosthodontically
- ❖ Manage total and partial glossectomy patients prosthodontically
- ❖ Design custom ocular, nasal and auricular prosthesis

##### TOPICS

- ❖ Psychological management of maxillofacial prosthetic patient
- ❖ The radiation therapy patient: treatment planning and post-treatment care
- ❖ Resin bonding for maxillofacial prosthesis
- ❖ Nasoalveolar molding in early management of cleft lip and palate
- ❖ Clinical management of edentulous & dentate maxillectomy patients

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- ❖ Clinical management of soft & hard tissue defects
- ❖ The impact of endosseous and facial implant on maxillofacial prosthesis
- ❖ Prosthodontic rehabilitation of Mandibulectomy patients
- ❖ Prosthodontic rehabilitation following total and partial glossectomy
- ❖ Fabrication of custom ocular, nasal, auricular prosthesis

### **MODULE 6:**

#### **OCCLUSION & TEMPOROMANDIBULAR JOINT DISORDERS**

##### **OBJECTIVES**

- ❖ The trainees at the end of the module should be able to:
- ❖ Identify the criteria for optimum functional occlusion
- ❖ Identify etiology & sign / symptoms of functional disturbances in masticatory system
- ❖ Take history, examination & diagnosis for temporomandibular disorder
- ❖ Identify the general considerations in treatment of temporomandibular joint disorder
- ❖ Formulate the treatment of masticatory muscle & joint disorders
- ❖ Design occlusal appliances
- ❖ Identify the general consideration & treatment with occlusal therapy
- ❖ Identify occlusal problems and execute occlusal adjustments
- ❖ Identify restorative consideration in occlusal therapy

##### **TOPICS**

- ❖ Criteria for optimum functional occlusion
- ❖ Etiology & Sign / Symptoms of functional disturbances in masticatory system
- ❖ History, Examination & Diagnosis for temporomandibular disorder
- ❖ General considerations in treatment of temporomandibular joint disorder
- ❖ Treatment of masticatory muscle & Joint disorders
- ❖ Occlusal appliances
- ❖ General consideration & Treatment with Occlusal therapy
- ❖ Selective grinding
- ❖ Restorative consideration in occlusal therapy



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### MODULE 7:

#### IMPLANT PROSTHODONTICS

#### OBJECTIVES

The trainees at the end of the module should be able to:

- ❖ Identify biomaterials & biomechanics for dental implants.
- ❖ Identify radiographic imaging in implant dentistry.
- ❖ Formulate treatment plans on the basis of diagnostic records, related to key implant positions and implant number.
- ❖ Examine natural teeth adjacent to an implant site: joining implants to teeth.
- ❖ Examine diagnostic casts, surgical templates, and identify the need for provisionalization.
- ❖ Design single-tooth implant restorations: maxillary / mandibular anterior and posterior region.
- ❖ Design multiple implant restorations: maxillary / mandibular anterior and posterior region.
- ❖ Formulate the treatment plan for edentulous mandible and maxilla overdentures / fixed prosthesis.
- ❖ Identify principles of fixed implant prosthodontics: cement retained / screw retained restorations.
- ❖ Understand digital technology in implant dentistry.
- ❖ Identify occlusal consideration for implant-supported prostheses: implant-protective occlusion.
- ❖ Identify the need for progressive bone loading: increasing the density of bone with a prosthetic protocol.

#### TOPICS

- ❖ Biomaterials & Biomechanics for dental implants
- ❖ Radiographic imaging in implant dentistry
- ❖ Treatment plans on the basis of diagnostic records, related to key implant positions and implant number
- ❖ Natural teeth adjacent to an implant site: joining implants to teeth
- ❖ Diagnostic casts, surgical templates, and Provisionalization
- ❖ **Single-tooth implant restorations:** maxillary / mandibular anterior and posterior region

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- ❖ Multiple implant restorations: maxillary / mandibular anterior and posterior region
- ❖ The edentulous mandible and maxilla: planning for overdentures / fixed prosthesis
- ❖ Principles of fixed implant prosthodontics: cement retained / screw retained restorations
- ❖ Digital technology in implant dentistry
- ❖ Occlusal consideration for implant-supported prostheses: implant-protective occlusion
- ❖ Progressive bone loading: increasing the density of bone with a prosthetic protocol

### MODULE 8:

#### PROSTHODONTIC MANAGEMENT OF SYNDROMIC PATIENTS

##### OBJECTIVES

The trainees at the end of the module should be able to:

- ❖ Promote oral health care in long-term care facilities. Patients with Hep B, C, HIV, DM, HTN etc.
- ❖ Manage cross infection control in prosthodontic clinic and laboratory.
- ❖ Diagnose and formulate treatment plan for ectodermal dysplasia.
- ❖ Diagnose and formulate treatment plan for amelogenesis imperfecta.
- ❖ Fluorosis, dentinogenesis imperfecta.
- ❖ Diagnose and manage the Sjogren's syndromic patients.
- ❖ Formulate treatment plan for congenitally missing teeth, malformed (anodontia and oligodontia).

##### TOPICS

- ❖ Promoting oral health care in long-term care facilities. Patients with HEP.B, C, HIV, DM, HTN etc.
- ❖ Cross infection control in Prosthodontic Clinic and Laboratory
- ❖ Ectodermal dysplasia
- ❖ Amelogenesis Imperfecta
- ❖ Fluorosis, Dentinogenesis Imperfecta
- ❖ Sjogren's Syndrome
- ❖ Congenitally missing & malformed teeth (anodontia and oligodontia)

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### B. CLINICAL PORTFOLIO

The level of competence to be achieved each year is as follows:

1. Observer status.
2. Assistant status.
3. Performs under supervision.
4. Performs independently.
5. Supervise others

TASKS (Portfolio Entries)	Competency Levels Year Wise							
	Year 1		Year 2		Year 3		Year 4	
	Level	Case	Level	Case	Level	Case	Level	Case
Obtaining pertinent history	4	10	5	08	5	10	5	10
Communicate effectively with patients, families, and health team	4	10	5	08	5	10	5	10
Perform a physical examination	4	10	5	08	5	10	5	10
Advise appropriate investigations	4	10	5	08	5	10	5	10
Interpret the result of investigations	4	10	5	08	5	10	5	10
Assess fitness to carry out prosthodontic Management	4	10	5	08	5	10	5	10
Maintain accurate and appropriate records	4	10	5	08	5	10	5	10
Make a treatment plan for edentulous patient	4	10	--	--	5	02	--	--
Pre-prosthetic preparation of the patient	4	10	--	--	5	02	5	02
Carry out clinical laboratory steps of complete denture fabrication	4	10	--	--	5	02	5	02
Management of patient requiring pre-prosthetic surgery	4	02	5	02	--	--	--	--
Management of old denture patient with soft tissue pathologies	4	02	5	02	--	--	--	--

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Management of edentulous patient with resorb residual ridges	5	02	--	--	--	--	--	--
Management of edentulous patient with angle's class II skeletal relation	4	02	--	--	--	--	5	01
Management of edentulous patient with angle's class III skeletal relation	4	02	--	--	5	01	--	--
Management of patient with few remaining teeth	4	01	--	--	--	--	5	01
Management of old denture patient requiring new denture	5	02	--	--	--	--	--	--
Management of patient requiring immediate dentures	4	01	--	--	5	01	--	--
Management of prosthodontic patient with systemic diseases	4	02	5	02	5	02	--	--
Management of prosthodontic patient with sub mucosa fibroses	2	01	4	01	5	01	--	--
Management of radiotherapy patient requiring prosthodontic management	2	01	3	01	5	01	--	--
Management of patient with microstomia	2	01	--	--	5	01	--	--
Management of patient with macroglossia	2	01	--	--	5	01	--	--
Management of prosthodontic patient with xerostomia	2	01	--	--	5	01	--	--
Management of patient with Kennedy's class I & IV in maxilla & mandible	4	03	--	--	--	--	5	01
Management of patient with Kennedy's class II in maxilla & mandible	4	03	--	--	5	01	--	--
Management of patient with Kennedy's class III in maxilla & mandible	5	03	--	--	--	--	--	--
Management of patient with fix restoration in posterior region with tilting abutments	--	--	5	02	--	--	--	--
Management of patient with fix restoration with supra erupted opposing teeth	--	--	5	02	--	--	--	--

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Management of young patient with fix restoration in anterior region (resin retain fixrestoration)	--	--	5	02	--	--	--	--
Management of patient requiring fixrestoration support for RPD	--	--	5	02	--	--	--	--
Management of patient requiring both fixrestoration & RPD	--	--	4	02	--	--	5	01
Management of patient with fix restoration in anterior region of maxilla and mandible	--	--	4	02	5	01	--	--
Management of patient with fix restoration in posterior region of maxilla and mandible	--	--	4	02	5	01	--	--
Management of patient with fix restoration in anterior region with space problems	--	--	4	02	--	--	5	01
Management of patient with tooth surfaceloss with non-compensated OVD	--	--	--	--	3	02	5	01
Management of patient with tooth surfaceloss with compensated OVD	--	--	--	--	3	02	5	01
Pre and Post-surgical prosthodontic management of maxillectomy/mandibular defect	--	--	--	--	3	04	5	01
Prosthodontic help of patients requiring oral surgery (pre-surgical stents/obturators)	--	--	--	--	3	02	5	01
Prosthodontic help of patients requiring radiotherapy	--	--	--	--	3	01	5	01
Prosthodontic help of patients requiring orthognathic surgery	--	--	--	--	3	01	5	01
Management of patient with orofacial pain due to occlusal problems	--	--	--	--	4	04	5	01
Management of patient with orofacial pain due to internal derangements of TMJ	--	--	--	--	4	04	5	01

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Treatment planning / treatment of patient requiring single implant in anterior maxilla & mandible	--	--	--	--	--	--	5	01
Treatment planning / Treatment of patient requiring single implant in posterior maxilla & mandible	--	--	--	--	--	--	5	01
Treatment planning / treatment of patient requiring multiple implants in anterior maxilla & mandible	--	--	--	--	--	--	4	02
Treatment planning / treatment of patient requiring multiple implants in posterior maxilla & mandible	--	--	--	--	--	--	4	02
Management of patient with esthetic problems	--	--	--	--	--	--	5	01
Management of patient with ectodermal dysplasia	--	--	--	--	--	--	5	01
Management of patient with dentinogenesis imperfect	--	--	--	--	--	--	5	01
Management of patient with amelogenesis imperfect	--	--	--	--	--	--	5	01

### MANDATORY ROTATIONS:

TASKS (Portfolio Entries)	Competency Levels Year Wise							
	Year 1		Year 2		Year 3		Year 4	
	Level	Case	Level	Case	Level	Case	Level	Case
<b>OPERATIVE DENTISTRY ROTATION</b>								
Evaluation and management of endodontically treated teeth requiring post And core restorations	--	--	5	05	--	--	--	--
Evaluation and preparation of over denture abutments	--	--	5	05	--	--	--	--

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### **C. RESEARCH AND THESIS WRITING:**

Project must be completed, and thesis be submitted before the end of training. Research can be done as one block or stretched over all years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

#### **Research Experience**

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including at least one publication in peer-reviewed journal. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

#### **Clinical Research**

Each resident will participate in at least one clinical research study to become familiar with:

- ❖ Literature Reviews
- ❖ Research design
- ❖ Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
- ❖ Data collection and data analysis
- ❖ Peer review process

### **ASSESSMENTS**

#### **A. CONTINUOUS INTERNAL ASSESSMENTS/ WORKPLACE-BASED ASSESSMENTS**

Workplace-based assessments (WPBAs) are used to evaluate progression through the specialty training program. The assessments aim to link

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teaching, learning and assessment in a structured way. The assessments need to be done throughout the training program with completion of all assessment forms. It is the responsibility of the trainee to organize the WPBAs after discussion with the supervisor.

There are three types of WPBA in clinical training programs of UHS.

1. Direct Observation of Procedural Skills (DOPS)
2. Mini Clinical Evaluation Exercise (Mini-CEX)
3. Case-based Discussion (CbD)

### **B. UNIVERSITY EXAMINATION**

There will be a total of two university examinations.

**1. Intermediate Examination:** After completion of 15 months of training

- ❖ Theory Component
- ❖ Practical Component

**2. Final Examination:** At the end of the Program

- ❖ Theory Component
- ❖ Practical Component
- ❖ Thesis Defense



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### 1. TABLE OF SPECIFICATIONS FOR INTERMEDIATE EXAMINATION

#### THEORY COMPONENT

Module Title	Topics	MCQS
Removable Complete Denture	Complete denture prosthesis - terminology, g.p.t., Boucher's clinical dental terminology.	02
	The edentulous state	02
	Systematic health aspect and nutritional consideration for edentulous patient	02
	The aging edentulous patient	02
	Sequelae caused by wearing complete denture	03
	History taking, treatment planning and improving denture bearing areas for edentulous patient	03
	Additional treatment planning option for both edentulous and potentially edentulous patient	02
	Material used in management of edentulous patient	02
	Maxillary and mandibular substitute for denture bearing area	02
	The denture 'polished surface recording jaw relation and transfer to articulator	02
	The occlusal surface the selection and arrangement of artificial teeth	02
	The try-in appointment	02
	Prosthetic insertion and follow-up appointments	02
	Modified protocol for immediate denture overdenture and single denture	02
	Prolonging the useful life of complete denture, relining, repair and duplication	02
	Speech consideration with complete denture	02
	The science of osseointegration	02
	Implant overdenture	02
	Fixed full arch implant supported prosthesis for edentulous patient	02
	Immediately loaded complete dental prostheses	02
Current and possible future direction in implant prosthodontics	02	
Removable Partial Denture	Classification of partially edentulous arches-	02
	Patient assessment, history and examination- partial denture equation, anatomy of denture bearing area.	02
	Scope, definition and terminology,	02
	Principles of removable partial denture design - bio mechanical considerations,	02
	Components of RPD - major connector - mandibular and maxillary,	02

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minor connectors,	
The first diagnostic problem	02
The second diagnostic problem	02
I-bar removable partial denture	02
Direct retainer- internal attachment, extra coronal direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing - reciprocal clasp.	02
Criteria for selecting a given clasp design,	02
Indirect retainer,	02
Tooth supported, and tooth and tissue supported RPD,	02
Preparation of mouth for removable partial dentures-oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation - objectives of periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery	02
Impression materials and procedures for removable partial dentures,	02
Preliminary impressions, jaw relations and articulation	02
Guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base,	02
Surveying - description of dental surveyor, purposes of surveying, aims and objectives in surveying of diagnostic cast and master cast.	02
Final path of placement, factors that determine path of placement and removal.	02
Survey and design	02
Laboratory procedure for frame work construction	02
Initial placement and adjustment of the removable partial denture - adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow - up services	02
Laboratory procedures - duplicating a stone cast, waxing the partial denture framework, anatomic replica patterns, Spruing, investing, burnout, casting and finishing of the partial denture framework and metal try-in.	02
Removable partial denture considerations in maxillofacial prosthetics	02
Altered cast technique+B54:C58C56B5B53:C58	02
Interim, transitional and treatment prosthesis	02
Relining and rebasing the removable partial denture-relining tooth supported dentures bases, relining distal extension denture bases, methods of reestablishing occlusion on a relined partial denture.	02
Repairs and additions to removable partial dentures - broken clasp arms, fractured occlusal rests, distortion or breakage of other components.	02
Management of failed restorations.	02

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**PRACTICAL COMPONENT**

Sr. No.	CLINICAL SKILLS	TOACS Stations
1.	Obtaining pertinent history	01
2.	Communicate effectively with patients, families and healthteam	
3.	Perform a physical examination	
4.	advise appropriate investigations	
5.	interpret the result of investigations	
6.	assess fitness to carry out prosthodontic Management	
7.	Maintain accurate and appropriate records	01
8.	Make a treatment plan for edentulous patient	01
9.	Pre-prosthetic preparation of the patient	01
10.	Carry out clinical laboratory steps of complete denturefabrication	01
11.	Post-prosthetic management and monitoring	
12.	Management of patient requiring pre-prosthetic surgery	01
13.	Management of old denture patient with soft tissuepathologies	
14.	Management of edentulous patient with resorb residual ridges	
15.	Management of edentulous patient with angle's class IIskeletal relation	01
16.	Management of edentulous patient with angle's class IIIskeletal relation	
17.	Management of patient with few remaining teeth	01
18.	Management of old denture patient requiring new denture	
19.	Management of patient requiring immediate dentures	
20.	Management of patient with Kennedy's class I & IV in maxilla& mandible	01
21.	Management of patient with Kennedy's class II or III in maxilla& mandible	01

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### Table Of Specifications For Final Examination

#### THEORY COMPONENT

Module	Topics	MCQS	SEQs
REMOVABLE COMPLETE DENTURE	Diagnosis, treatment planning and management of all the different varieties and forms of conventional & contemporary complete denture treatment modalities (including piezographs, neutral zone, gasket, cusil, implant supported & retained etc.)	10	01
REMOVABLE PARTIAL DENTURE	Diagnosis, treatment planning and management of all the different varieties and forms of conventional & contemporary partial denture treatment modalities (including flexible, sectional, precision attachment, esthetic clasp assemblies etc.)	10	01
FIXED PROSTHODONTICS	History taking, clinical examination, diagnosis, treatment planning and mouth preparation including principals of occlusion and periodontal considerations.	01	02
	Patients desires, expectations and needs. Systemic and emotional health.	01	
	Clinical examinations - head and neck, oral - teeth, occlusal and periodontal.	02	
	Preparation of diagnostic cast, radiographic interpretation, aesthetics, endodontics considerations.	02	
	Crown morphology, TMJ and muscles of mastication and comprehensive planning and prognosis.	02	
	Abutment selection - bone support, root proximities and inclinations, selection of abutments, for cantilever, pier abutments, splinting.	02	
	Principles of tooth preparations, tissue management, impression making and instrumentation.	02	
	Design, material selection, and biological and mechanical	02	

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	considerations - retainer and precision attachments - custom made and readymade	02	
	Preparation of crowns, cast metal, metal ceramic crowns, all ceramic crowns, partial veneer crowns, three quarter crowns, inlays and on lay preparation.	02	
	Restoration of endodontically treated teeth.	02	
	Interim fixed restorations.	02	
	Interocclusal records, laboratory support for fixed prosthodontics, occlusal equilibration, articulators, recording and transferring of occlusal relations.	02	
	Evaluation, characterization and glazing of restoration.	02	
	Types of luting agents and cementation procedure.	02	
	Post-operative care.	02	
TOOTH WEAR/ TOOTH SURFACE LOSS	Presentation, Etiology & Management strategies of different types of Tooth wear	02	01
	The appropriate techniques, materials and technologies available to manage tooth wear.	01	
	Select the appropriate material for direct and indirect restorations.	01	
	Accurately record the occlusion including competency in using face bow and articulation and understand when these techniques are applicable.	01	
	Provide appropriate provisional restorations.	01	
	Fit restorations using appropriate adhesives or cements ensuring that appearance, occlusion, and function are in harmony with the remaining dentition and patient's wishes.	01	
	Recognize the relevance and inter- relationship of adhesive and conventional restorations in the prosthodontic treatment of tooth wear.	01	
	Relevant dental anatomy and tooth proportion involved in smile design.	01	
Use of direct composite layering techniques for managing alterations in tooth color and morphology	01		

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	Prosthodontic rehabilitation following total and partial glossectomy	01	
	Fabrication of custom ocular, nasal, auricular prosthesis	01	
OCCLUSION AND TMJ	Criteria for optimum functional occlusion	01	01
	Etiology & Sign / Symptoms of functional disturbances in masticatory system	02	
	History, Examination & Diagnosis for temporomandibular disorder	01	
	General considerations in treatment of temporomandibular joint disorder	01	
	Treatment of masticatory muscle & Joint disorders	01	
	Occlusal appliances	01	
	General consideration & Treatment with Occlusal therapy	01	
	Selective grinding	01	
	Restorative consideration in occlusal therapy	01	
IMPLANT PROSTHODONTICS	Biomaterials & Biomechanics for dental implants	01	02
	Radiographic imaging in implant dentistry	01	
	Treatment plans on the basis of diagnostic records, related to key implant positions and implant number	01	
	Natural teeth adjacent to an implant site: joining implants to teeth	01	
	Diagnostic casts, surgical templates, and Provisionalization	01	
	Single-tooth implant restorations: maxillary / mandibular anterior and posterior region	01	
	Multiple implant restorations: maxillary / mandibular anterior and posterior region	01	
	The edentulous mandible and maxilla: planning for overdentures / fixed prosthesis	01	
	Principles of fixed implant prosthodontics: cement retained / screw retained restorations	01	
	Digital technology in implant dentistry	01	
	Occlusal consideration for implant-supported prostheses: implant-protective occlusion	01	
Progressive bone loading: increasing the density of bone with a prosthetic protocol	01		

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PROSTHDONTIC MANAGEMENT OF SYNDROMICPATIENTS	Promoting oral health care in long-term care facilities. Patients with HEP.B, C, HIV, DM, HTN etc. Cross infection control in Prosthodontic Clinic and Laboratory	02	01
	Ectodermal dysplasia	02	
	Amelogenesis Imperfecta	02	
	Fluorosis, Dentinogenesis Imperfecta		
	Sjogren's Syndrome	01	
	Congenitally missing teeth, malformed (anodontia and oligodontia)	01	

### PRACTICAL COMPONENT

Sr. No.	CLINICAL SKILLS	Practical		
		Long Case	Short Case	TOACS
1.	Management of patient with fix restoration in posterior region with tilting abutments		01	01
2.	Management of patient with fix restoration with supra erupted opposing teeth			
3.	Management of young patient with fix restoration in anterior region (resin retain fix restoration)			02
4.	Management of patient requiring fix restoration support for RPD			
5.	Management of patient requiring both fix restoration & RPD			
6.	Management of patient with fix restoration in anterior region of maxilla and mandible			
7.	Management of patient with fix restoration in posterior region of maxilla and mandible			
8.	Management of patient with fix restoration in anterior region with space problems			
9.	Management of patient with tooth surface loss with non-compensated OVD	01	01	01
10	Management of patient with tooth surface loss with compensated OVD			
11	Pre and Post-surgical prosthodontics management of maxillectomy patient			02
12	Prosthodontics help of patients requiring oral surgery			

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13.	Prosthodontic help of patients requiring radiotherapy		01	
14.	Prosthodontic help of patients requiring orthognathic surgery			
15.	Management of patient with orofacial pain due to occlusal problems			02
16.	Management of patient with orofacial pain due to internal derangements of TMJ			
17.	Treatment planning / treatment of patient requiring single implant in anterior maxilla & mandible		01	01
18.	Treatment planning / Treatment of patient requiring single implant in posterior maxilla & mandible			
19.	Treatment planning / treatment of patient requiring multiple implants in anterior maxilla & mandible			01
20.	Treatment planning / treatment of patient requiring multiple implants in posterior maxilla & mandible			
21.	Management of patient with esthetic problems			02
22.	Management of patient with ectodermal dysplasia			
23.	Management of patient with dentinogenesis imperfect			
24.	Management of patient with amelogenesis imperfect			

### **2. THESIS EXAMINATION**

Submitted thesis is sent for evaluation to two local examiners and one foreign examiner. After evaluation and approval by Advanced Studies & Research Board (AS&RB).

The students are expected to demonstrate a thorough understanding of the research topic, the research methodology and their contribution in the clinical field through their research. There should be a comprehensive understanding of the impact and benefit of research to the relevant patient population in the future.



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### EDUCATIONAL RESOURCES

- ❖ Complete Denture Prosthodontics by DJ Neill & RJ Nairn 3<sup>rd</sup> edition
- ❖ Designing Complete Dentures by David M Watt & A Roy MacGregor 2<sup>nd</sup> edition
- ❖ Prosthetic Treatment of the Edentulous patient by RM Basker, JC Davenport, JM Thomson 5<sup>th</sup> edition
- ❖ Prosthodontic Treatment for Edentulous patients by Zarb, Hobkrik, Eckert, Jacob 13<sup>th</sup> edition
- ❖ Stewart's Clinical Removable Partial Prosthodontics by RD Phoenix, DR Craig, DeFreest 4<sup>th</sup> edition
- ❖ Mc Cracken's Removable Partial Prosthodontics by A Carr, D Brown 13<sup>th</sup> edition
- ❖ Removable Partial Prosthodontics: a case-oriented manual of treatment planning by S Lechner, A MacGregor
- ❖ Fundamentals of Fixed prosthodontics by HT Schillingburg 4<sup>th</sup> edition
- ❖ Contemporary Fixed prosthodontics by Rosenstiel, Land, Fujimoto 5<sup>th</sup> edition
- ❖ Clinical Maxillofacial Prosthetics by Thomas D Taylor
- ❖ Dental Implant Prosthetics by Carl E Misch 2<sup>nd</sup> edition
- ❖ Management of Temporomandibular disorders and occlusion by JP Okeson 7<sup>th</sup> edition
- ❖ Functional Occlusion from TMJ to Smile design by Peter Dawson
- ❖ Dental Radiography & Radiology by Eric Whaites
- ❖ Scully's Medical Problems in Dentistry by Crispian Scully
- ❖ Clinical Problem solving in Dentistry by EW Odell
- ❖ Oral Rehabilitation: a case-based approach by I Klineberg, D Kingston
- ❖ Practical procedures in the management of Tooth Wear by S Banergi, S Mehta, N Opdam, B Loomans
- ❖ Clinical problem solving in Periodontology & Implantology by F Hughes, K Seymour, W Turner, S Shahid, F Nohl
- ❖ Essentials of Esthetic Dentistry by Nairn HF Wilson
- ❖ British Dental Journal
- ❖ Dental Update
- ❖ Journal of Prosthetic Dentistry
- ❖ International Journal of Prosthodontics
- ❖ Gerontology (Journal)