



**SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY**



## **Operative Dentistry**

**Residency Training Program  
Leading to the degree of**

**Master of Dental Surgery (MDS)**

**SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY  
ISLAMABAD**



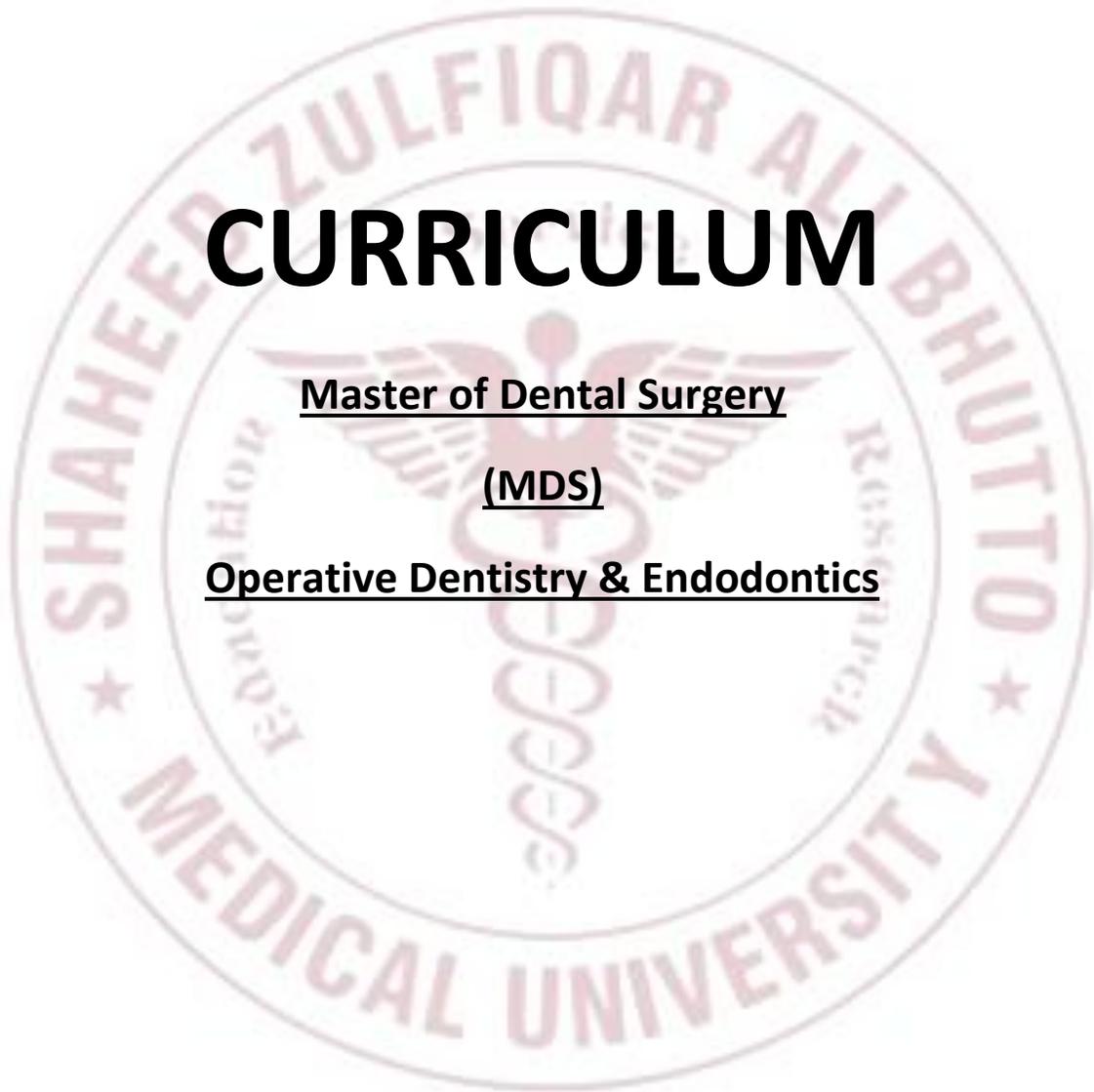
**SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY**

# **CURRICULUM**

**Master of Dental Surgery**

**(MDS)**

**Operative Dentistry & Endodontics**





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## CURRICULUM DEVELOPMENT COMMITTEE

This Curriculum is developed by the following committee

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Dean of Dentistry  
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## ROAD MAP OF MDS OPERATIVE DENTISTRY

### Eligibility

1. BDS degree or equivalent recognized by PM&DC.
2. One (1) year clinical experience.

### Criteria for Admission

1. Entry examination by the University (MDS-Part-1)
2. Interview
3. Valid TOEFL score for foreign graduates

### Number of candidates/program/year

The candidates to be admitted in the program as per University and PMDC rules.

### **GENERAL INFORMATION AND PROGRAM GOALS:**

The department of Operative Dentistry at Islamabad Dental Hospital will offer a 48 month MDS Program. The program intends to model a training atmosphere with state of the art clinical facilities. The curriculum is centered on daily clinical seminars and instruction with each individual class.

The goal of this program is to produce consultants and trainers who are proficient in the contemporary skills of all the domains of operative dentistry and are competent to carry out individual research and continuing professional development.

### **COURSE DESCRIPTION:**

A total of one hundred and twenty-eight (128) credit hours of instruction and supervised activities are distributed over four years' academic period. This comprises approximately 1152 contact hours of direct instruction and approximately 6672 scheduled hours including formal didactic, clinical, research and laboratory experience.

(1 credit hour will be equal to 9 hours of direct contact)



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<b>FIRST YEAR MDS</b>		
<b>CORE COURSES</b>	<b>COURSE TITLE</b>	<b>CREDIT HOURS</b>
1	Anatomy, Physiology, Psychology, Pain	1
2	Advanced Oral Pathology	2
3	Introduction to statistical inference	1
4	Introduction to research	1
5	Multidisciplinary differential diagnosis	1
6	Dental therapeutics	0.5
7	Principles of practice management	0.5
8	Occlusion	2
9	Advanced Oral medicine	0.5
10	Sterilization	1
11	Radiology	1
12	Basics of Microsoft office	1
13	CPC Presentation	0.5
14	Literature review 1	1
15	Communication skills	1
		<b>15</b>
<b>SPECIALITY COURSES</b>		
16	History Taking & Clinical Examination	2
17	Preliminary considerations for restorative dentistry	2
18	Restorative Dentistry Armamentarium	1.5
19	Cariology	3
20	Pulpal & Periradicular Diseases	3



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21	Direct Restorations I	5
22	Endodontic Treatment I	5
23	Journal Club	2.5
24	Research	6
		<b>30</b>
<b>Second Year</b>		
25	Diagnosis & Treatment Planning	2
26	Preventive Dentistry	2
27	Direct Restorations II	5
28	Endodontic Treatment II	5
29	Pulp Therapies in Primary Teeth	4
30	Principles of Fixed Prosthodontics	2
31	Principles of Pediatric Dentistry	1
32	Periodontal restorative Interface	2
33	Journal Club	2.5
34	Research	6
		<b>31.5</b>
<b>MTA Examination</b>		
<b>Third Year (Graduate Assistantship)</b>		
35	Diagnosis & Treatment Planning	2
36	Endodontic Retreatment	3
37	Surgical Endodontics II	2.5
38	Indirect Restorations I	4
39	Periodontal restorative Interface	2



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40	Dental Traumatology I	3
41	Dental Implants I	2
42	Diagnosis & Management of dental anomalies	2
43	Journal Club	2.5
44	Research	6
		<b>29</b>
<b>Fourth Year (Graduate Assistantship)</b>		
45	History Taking, Clinical Examination, Diagnosis & Treatment Planning of multidisciplinary cases	03
46	Indirect Restorations II	4
47	Dental Traumatology II	3
48	Dental Implants II	2
49	Periodontal restorative Interface	2
50	JOURNAL CLUB	2.5
51	RESEARCH	6
		<b>22.5</b>
<b>TOTAL=108</b>		
<b>EXIT EXAMINATION</b>		
<b>PAPER I (SPECIALITY)</b>		
<b>PAPER II (SPECIALITY)</b>		



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## Requirements of MDS Degree for Graduate Students Enrolled in the Operative Dentistry Program

- Fulfillment of University requirements for postgraduate study.
- Four (4) years of consecutive full time advanced study and clinical training at Islamabad Dental Hospital.
- Complete and approved master's thesis based on original research during the course of study in an area related to Operative Dentistry, suitable for publication in a reputable dental journal.
- Must complete all didactic & clinical work in the required curriculum and satisfactorily pass all the University examinations.
- Completion of allocated quota. (Log book should reflect all clinical work carried out).
- A minimum grade of "B (60%)" must be earned in all work/examinations attempted in the master's program. A grade below "B" will require re-examination.

A complete road map for postgraduate MS/MD/MDS can be accessed at University website <http://www.szabmu.edu.pk/content/downloads/road-map-for-postgraduate-residents.pdf>





## Introduction

This curriculum has been developed on the basis of SPICES model which is indicative of the competencies required at the varying levels of training within the specialty together with the knowledge, skills and attitudes achieved by the trainee in acquiring those competencies. The training has been based on the current thinking and the requirements for

- Greater protection of the public by providing clear information as to the level of training achieved.
- Improved access to specialty training to general practitioners.
- Greater flexibility of training through the availability of multiple instructors.
- Producing a competent workforce with the appropriate skills and knowledge necessary to meet the varying levels of treatment complexity, as well as considering the relative need and demand of potential patients.

## Rationale:

### **Purpose of training**

To provide guided training and assessment of specialty trainees in operative dentistry to produce consultants and trainers who are proficient in the contemporary skills of all the domains of operative dentistry and are competent to carry out individual research and continuing professional development.

### **Context of Training**

To provide an organized educational program with guidance and supervision, a structured training program will be followed so that each trainee is exposed to different aspects of the subject and acquires special knowledge and skill as expected from the program. The training will provide a basis for the candidate to develop into a lifelong learner who is capable of self-reflection and self-directed learning. It will provide a basis for further ongoing development in the field of operative dentistry.

### **Duration of training**

The program leading to MDS in Operative Dentistry will be of 4 years' full time



## Content of Learning:

### **Aims of Training**

The candidate should acquire and become proficient in the skills required for operative dentistry practice with an emphasis on multidisciplinary treatment planning, disease prevention and provision of advanced operative dentistry treatment techniques for those clinical cases meriting specialist care. The candidate should demonstrate attitudes necessary for the achievement of high standards of operative dentistry practice both in relation to the oral health needs of the population and to his/her own personal development.

### **Learning Outcomes**

On completion of training, the trainee will be able to achieve following aptitudes

#### **Knowledge**

- Demonstrate knowledge of clinical aspects of basic sciences as applied to operative dentistry & endodontics
- Demonstrate knowledge of the etiology, pathophysiology and clinical presentations of diseases of oral and perioral tissues.
- Demonstrate knowledge of the impact of systemic diseases on oral tissues and of oral diseases on systemic health.
- Acquire knowledge and comprehend the principles of theory and practice of all the domains of operative dentistry and endodontics.

#### **Skill**

- Take history and conduct clinical examination and investigations that allow collection of information required to evaluate the oral and related medical conditions for all patients.
- Determine the differential, provisional and definitive diagnosis by interpreting and correlating findings from the history, clinical & radiographic examination together with other diagnostic tests.
- Devise treatment plans specific to the needs and expectations of individual patients.
- Execute conventional and contemporary techniques of all the domains of operative dentistry & endodontics.



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- Demonstrate competency in teaching methods, use of information technology, appraisal and assessment techniques and development of appropriate learning methods for lifelong learning.
- Show evidence of ability to undertake research.

### Attitude

- Demonstrate a professional and ethical approach to patient care.
- Demonstrate a professional attitude to all the members of the dental team.
- Demonstrate full and clear understanding of equality and diversity legislation as it applies to the workplace and to professional practice.

### ENTRY CRITERIA:

#### Eligibility to apply for MDS Operative Dentistry

- Candidate must possess BDS or equivalent degree and one-year house job from PMDC recognized Institutions.
- Permanent valid registration with PM&DC.
- Declared successful in MDS Part-I for Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad.
- In case of foreign candidate, valid registration with Medical Council of their country of origin must be produced.

#### Required Documents

Attested photo copies of the following documents must be attached with application form:

- Computerized National Identity Card (CNIC)
- Domicile certificate
- Matric/O Level, FSc/A Level, Certificates or equivalent
- BDS degree with detail marks certificates of all professional
- BDS Attempts certificates of all professional
- NEB pass certificate (for foreign graduates)



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- House Job certificates
- PMDC valid permanent registration certificate
- MDS Part-I passing certificate
- Experience Certificates (if any)
- Migration Certificate (To be produced at the time of admission)

### Admission Procedure

- Details of admission procedure is available on university website at <http://www.szabmu.edu.pk/admission/postgraduate-admission>





## Specialty Courses

\* Essential reading list is provided as annexure 'A'

- Operative Dentistry
- Endodontics
- Fixed Prosthodontics
- Pedodontics
- Periodontology & Implantology
- Preventive & Community Dentistry





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## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### OPERATIVE DENTISTRY

#### PATIENT ASSESSMENT, EXAMINATION, DIAGNOSIS & TREATMENT PLANNING

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• History taking</li> <li>• Examination of orofacial soft tissues</li> <li>• Examination of Teeth &amp; restorations</li> <li>• Review of periodontium</li> <li>• Examination of occlusion</li> <li>• Various diagnostic tests &amp; investigations</li> <li>• Treatment plan sequencing</li> <li>• Interdisciplinary considerations in treatment planning</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Examine the patient thoroughly</li> <li>• Make a differential diagnosis</li> <li>• Perform relevant diagnostic tests &amp; carry out investigations to establish definitive diagnosis</li> <li>• Devise strategies and plans based on the likely prognosis and outcomes of the various treatment options, relating this to prognosis without treatment and establishing a resultant priority and sequence of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



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## CARIOLOGY: THE LESION, ETIOLOGY, PREVENTION & CONTROL

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Etiology of caries</li> <li>• Clinical characteristics of the lesion</li> <li>• Histopathology of caries</li> <li>• Caries diagnosis</li> <li>• Caries prevention</li> <li>• Caries treatment</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of various aspects of cariology</li> <li>• Apply knowledge to diagnose &amp; prevent caries</li> <li>• Devise a management plan tailored to patient's needs</li> <li>• Assess the risk of caries with the help of various activity tests</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Extra mural training</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



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## PRELIMINARY CONSIDERATIONS IN OPERATIVE DENTISTRY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"><li>• Operator and patient positioning</li><li>• Isolation of the operating field</li><li>• Pain control</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Demonstrate proper operator and patient positioning.</li><li>• Properly isolate the operating field with rubber dam for different restorative procedures.</li></ul>	<ul style="list-style-type: none"><li>• Systematic simulation laboratory exercises</li><li>• Workplace (clinical) experience</li><li>• Attendance at suitable courses</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments ( DOPS, Mini-CEX, MSF)</li><li>• OSCE</li></ul>



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## DIRECT RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Different types of direct restorations</li> <li>• Armamentarium for tooth preparations</li> <li>• Principles of tooth preparation</li> <li>• Conventional intracoronal tooth preparations</li> <li>• Modified techniques of tooth preparations</li> <li>• Factors affecting tooth preparation</li> <li>• Problems associated with direct restorations</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the correct use of instruments</li> <li>• Execute conventional and modified techniques of tooth preparation</li> <li>• Appreciate the problems associated with direct restorations and adopt means to overcome them</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Workplace (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (DOPS, Mini-CEX, MSF)</li> <li>• OSCE</li> </ul>



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## BONDING TO ENAMEL & DENTIN

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge about :</p> <ul style="list-style-type: none"><li>• Basic concepts of adhesion</li><li>• Enamel adhesion</li><li>• Dentin adhesion</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Demonstrate an understanding of adhesion to enamel and dentin along with its clinical applications.</li><li>• Adapt ways and means to overcome problems associated with bonding to dentin.</li></ul>	<ul style="list-style-type: none"><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Written Examination/ VIVA</li></ul>



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## ESTHETIC CONSIDERATIONS IN DIAGNOSIS & TREATMENT PLANNING

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"><li>Principles of microesthetics and macroesthetics</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>Examine the patient thoroughly keeping in view esthetic considerations</li><li>Design a treatment plan which not only fulfils patients need but is also esthetically acceptable.</li><li>Design a treatment plan keeping in view latest innovations in the field of esthetic dentistry.</li></ul>	<ul style="list-style-type: none"><li>Workplace (clinical) experience</li><li>Clinical cases for observational and personal treatment</li><li>Attend trainee seminars within department</li><li>Attendance at suitable courses</li><li>Attendance at suitable meetings</li><li>Self-directed &amp; Independent study</li></ul>	<ul style="list-style-type: none"><li>Workplace based assessments (CBD, DOPS)</li><li>Written Examination/ VIVA</li></ul>



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## INDIRECT RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Different types of indirect restorations</li> <li>• Indications &amp; limitations of indirect restorations</li> <li>• Treatment Planning</li> <li>• Principles of tooth preparation for indirect restorations</li> <li>• Execution of various stages in the fabrication of indirect restorations</li> <li>• Fabrication of interim restoration</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Thoroughly plan a case for indirect restorations</li> <li>• Execute all the stages in the fabrication of indirect restorations along with the placement of the interim restorations.</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Workplace (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• OSCE</li> </ul>



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## TOOTH SURFACE LOSS (TSL)

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Different types of TSL</li> <li>• Relevant anatomy, physiology, pathology, microbiology and technical requirements in the management of TSL</li> <li>• Current and seminal literature on the etiology and preventive management of TSL</li> <li>• Dental materials, equipment and techniques to provide relevant treatment and the response of the dental tissues to this treatment</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Take an appropriate history to determine the etiological factors involved in TSL</li> <li>• Understand and use the appropriate techniques, materials and technologies available to manage TSL</li> <li>• Provide treatment plans for primary care practitioners in the management of TSL</li> <li>• Provide different types of direct / indirect restorations for worn dentition.</li> <li>• Accurately record the occlusion including the use of facebow and articulation of the casts</li> <li>• Monitor and evaluate the effectiveness of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



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## TABLE OF SPECIFICATIONS

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1.	Patient assessment, diagnosis & treatment planning			03			04			03	10
2.	Cariology			07			15			03	25
3.	Preliminary Considerations in Operative Dentistry						03			02	05
4.	Direct Restorations			05			08			02	15
5.	Bonding to Enamel & Dentin			03			04			03	10
6.	Esthetic Considerations in Diagnosis & Treatment Planning			03			05			02	10
7.	Indirect Restorations			05			08			02	15
8.	Tooth surface loss			03			05			02	10



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## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### ENDODONTICS

#### PULPAL AND PERIRADICULAR DISEASES & LESIONS OF NON ENDODONTIC ORIGIN

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Histopathology of pulpal and periradicular diseases</li> <li>• Sequel of pulpal inflammation</li> <li>• Correlation of symptoms and signs with histopathology</li> <li>• Periapical lesions of non-endodontic origin</li> <li>• Factors influencing periapical wound healing</li> </ul>	<p>The trainee should be able to :</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of etiology, diagnosis, histopathology and sequel of pulpal and periradicular diseases</li> <li>• Correlate clinical findings with inflammatory stage</li> <li>• Manage pulpal and periradicular diseases</li> <li>• Diagnose periapical lesions of non-endodontic origin</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace Based Assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination / VIVA</li> <li>• OSCE</li> </ul>



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## CASE SELECTION & TREATMENT PLANNING

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To improve the knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Dental, Medical and social history taking relevant to proposed management</li> <li>• Current best evidence for effectiveness of various treatment modalities and their execution</li> <li>• Prognostic and risk factors for various treatment modalities</li> <li>• Decision making</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Devise strategies and plans based on the likely prognosis and outcomes of the various treatment options, relating this to prognosis without treatment and establishing a resultant priority and sequence of treatment</li> <li>• Develop a treatment strategy in conjunction with the patient producing a plan or plans according to their needs and preferences, including future need for further corrective or supportive therapy.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience in OPD</li> <li>• Problem solving</li> <li>• Attendance at suitable courses</li> <li>• Attendance at clinical meetings</li> <li>• Self directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (DOPS, CBD, MSF)</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PAIN CONTROL & MANAGEMENT (ACUTE & CHRONIC), ANALGESIA, SEDATION AND ANESTHEISA

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessment
<p>To impart knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Basic and clinical science of acute and chronic peri-oral pain conditions</li> <li>• Mechanism of failed local anesthesia</li> <li>• Primary and supplemental techniques for local anesthesia of the pulp</li> <li>• Procedures for the emergency management of acute dental pain and sepsis</li> <li>• Pharmacology and therapeutics related to analgesic use</li> <li>• Features of non dental and chronic pain</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Provide appropriate pain and anxiety control for patients attending for non-surgical and surgical treatment on a planned or emergency basis.</li> <li>• Diagnose and provide appropriate emergency dental treatment for the relief of acute pain.</li> <li>• Advise on appropriate peri-operative analgesia.</li> <li>• Recognise the need for inter-disciplinary care in the management of pain and anxiety conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Self directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessment (CBD, DOPS)</li> <li>• Written Examination / VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## VITAL PULP THERAPIES

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"><li>• Relevant biology, anatomy, physiology, pathology, microbiology and technical requirements in relation to vital pulp management</li><li>• Procedures for pulp diagnosis and their limitations</li><li>• Procedures for vital pulp management and their expected outcome</li><li>• Evidence based approaches for regenerative endodontics</li><li>• Revascularization protocol</li><li>• The features of an appropriate recall schedule</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Assess the condition of the pulp and recognise the limitations of diagnostic tests.</li><li>• Understand the rationale for vital pulp therapies.</li><li>• Execute vital pulp therapies, including regenerative techniques</li><li>• Implement suitable recall schedules and plan further therapy when required.</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Appropriate range of clinical cases for observational and personal treatment</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Self directed &amp; Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## NON SURGICAL ROOT CANAL TREATMENT

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Materials and Armamentarium used in endodontic treatment</li> <li>• The anatomy of the pulp space</li> <li>• All the stages in the execution of endodontic treatment</li> <li>• The contemporary procedures and options in non-surgical endodontic treatment.</li> <li>• Conventional and contemporary techniques for endodontic imaging</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Execute all the stages of endodontic treatment using conventional and contemporary techniques</li> <li>• Appropriately seal and protect root canal treated teeth before discharge of the patient</li> <li>• Implement suitable recall schedules and plan further therapy when required</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Workplace (clinical) experience</li> <li>• Workplace training in the execution and evaluation of clinical techniques</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses / meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace Based Assessments ( CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination / VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## ENDODONTIC MICROBIOLOGY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about:</p> <ul style="list-style-type: none"><li>• Microorganisms involved in endodontic infections</li><li>• Biofilms and community based microbial pathogenesis</li><li>• Development of resistant cases</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Demonstrate an understanding of the role of biofilms in endodontic infections with abscess , cellulitis and spread of infection to fascial spaces as its consequence if remain unchecked</li><li>• Identify resistant cases and their management</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Self-directed &amp; Independent study</li></ul>	<ul style="list-style-type: none"><li>• Written Examination /VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## NON SURGICAL ROOT CANAL RETREATMENT

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Iatrogenic and non iatrogenic causes of endodontic failure</li> <li>• Options for management</li> <li>• Treatment planning</li> <li>• Prognosis of retreatment</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Diagnose and manage cases with non surgical options</li> <li>• Justify the management strategies including observation, non surgical retreatment, surgical treatment and extraction for teeth affected by post-treatment endodontic disease.</li> <li>• Assess prognosis and confounding factors and appropriately select cases for non-surgical endodontic retreatment.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience with trainers</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Self-directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessment (CBD, DOPS)</li> <li>• Written Examination /VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PULPAL REACTIONS TO CARIES AND DENTAL PROCEDURES

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about :</p> <ul style="list-style-type: none"><li>• Different types of pulpal reactions to caries</li><li>• Correlation between clinical symptoms and actual pulpal inflammation</li><li>• Dentin hypersensitivity and its management</li><li>• Pulpal reactions to dental materials and procedures</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Appreciate the negative influences of dental procedures and materials on pulp and methods to overcome them</li><li>• Assess the need for further intervention in the face of an uncertain outcome.</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Self-directed &amp; Independent study</li></ul>	<ul style="list-style-type: none"><li>• Written Examination / VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## RESTORATION OF ENDODONTICALLY TREATED TEETH

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• Special features of endodontically treated teeth</li> <li>• Restorative Materials and Options</li> <li>• Pre-treatment evaluation and treatment strategy</li> <li>• Clinical Procedures</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate treatment planning and practical skills necessary for restoring endodontically treated teeth using different techniques.</li> <li>• Apply knowledge of occlusion in the assessment and management of endodontically involved teeth.</li> <li>• Integrate knowledge and practical expertise in the assessment of structurally compromised teeth.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Systematic simulation laboratory exercises</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Self-directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX)</li> <li>• Written Examination/ Viva</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## SURGICAL ENDODONTICS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Surgical anatomy: gross and fine detail relevant to investigative and reparative procedures.</li> <li>• Principles of surgical soft and hard-tissue management</li> <li>• Support of the surgical patient before, during and after the procedure.</li> <li>• Dental materials, equipment and procedures to provide surgical treatment</li> <li>• Execution of all surgical endodontic techniques</li> <li>• The features of an appropriate recall programme</li> </ul>	<p>The trainee should be able to :</p> <ul style="list-style-type: none"> <li>• Understand the need for investigative and corrective surgery in the management of endodontic disease.</li> <li>• Understand the need for proper pre-operative assessment, inter-speciality and patient communication in the planning of surgical care.</li> <li>• Manage the special patient anxieties which may be associated with surgical care.</li> <li>• Appropriately manage endodontic disease surgically.</li> <li>• Communicate effectively with pathology laboratories.</li> <li>• Provide appropriate adjunctive care</li> <li>• Implement an appropriate post-surgical recall schedule.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Self-directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessment (CBD, DOPS)</li> <li>• Written Examination / VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## TOOTH DISCOLOURATION AND BLEACHING

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"><li>• Etiology of tooth discolouration, bleaching agents, mechanism of action and associated complications / adverse effects</li><li>• Execution of bleaching techniques</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Diagnose the cause of tooth discolouration and perform the bleaching procedures</li><li>• Implement suitable recall schedules and plan further therapy when required.</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Clinical cases for observational and personal treatment</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Self-directed &amp; Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## DIAGNOSIS & MANAGEMENT OF OROFACIAL PAIN, PSYCHOGENIC PAIN & TMD

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• Differential diagnosis of orofacial pain</li> <li>• Psychogenic pain</li> <li>• Relevant biology, anatomy, physiology, pathology and radiology in provision of care and advice for TMD</li> <li>• Current and seminal literature on diagnosis and management of these disorders</li> <li>• Different treatments available for TMD and recognise limitations</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Diagnose and treat orofacial pain.</li> <li>• Manage a patient with psychogenic pain.</li> <li>• Diagnose oral parafunction and other factors in the development of dysfunction of mandibular movements and the TMJs.</li> <li>• Provide behavioural advice for the management of these problems.</li> <li>• Construct appropriate occlusal appliances for the diagnosis and treatment of these problems.</li> <li>• Communicate and work with colleagues on the multidisciplinary management of these problems.</li> <li>• Develop a treatment strategy in conjunction with the patient producing a plan or plans according to their needs and preferences, including future need for further therapy.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Self-directed &amp; Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based Assessments (DOPS, CBD)</li> <li>• Written Examination / VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## ENDODONTIC-PERIODONTAL INTERRELATIONSHIPS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• Intercommunication between pulpal and periodontal tissue</li> <li>• Influence of pulpal pathological condition on the periodontium</li> <li>• Influence of periodontal inflammation on pulp</li> <li>• Pathways of osseous lesion formation</li> <li>• Classification of Endo-Perio Lesions</li> <li>• Differential Diagnosis</li> <li>• Treatment Alternatives</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• To understand the importance and implications of the inter-relationship between Endodontics and other clinical disciplines, particularly periodontics.</li> <li>• Carry out periodontics at the level of a skilled general dental practitioner.</li> <li>• Assess the periodontal status of teeth relevant to the restoration of the tooth.</li> <li>• Diagnose different forms of lesions</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Some clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessment (CBD, DOPS)</li> <li>• Written Examination/VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## DENTAL TRAUMATOLOGY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Classification of dental trauma</li> <li>• Evaluation and management of dental trauma</li> <li>• The biology of wound healing and tissue reaction patterns following trauma and emergency trauma management</li> <li>• Current best evidence on the expected outcomes of dental trauma after optimal and sub-optimal management</li> <li>• The clinical features which may indicate an unfavourable tissue response to trauma management</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Understand the nature and consequences of different soft and hard tissue wound healing/reaction patterns after trauma and their consequences for the oral tissues.</li> <li>• Communicate clearly and effectively with medical and dental specialists to safeguard patient safety and ensure continuity of care.</li> <li>• Appropriately evaluate and manage dental trauma</li> <li>• Understand the need for clear and effective communication with patients and their parents/guardians where children are involved.</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Workplace training in the execution and evaluation of clinical techniques including splinting, management of open apices and restorative exercises</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments ( CBD, DOPS)</li> <li>• Written Examination / VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

**TABLE OF SPECIFICATIONS**

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1.	Pulpal & periradicular diseases & lesions of non endodontic origin			03			05			02	10
2.	Case Selection & Treatment Planning						03			02	05
3.	Pain Control & Management						03			02	05
4.	Vital Pulp Therapies			02			04			02	08
5.	Non-Surgical Endodontic Treatment			03			05			02	10
6.	Endodontic Microbiology			03			02				05
7.	Non surgical root canal retreatment			03			05			02	10
8.	Pulpal Reactions to Caries & Dental Procedures			05							05
9.	Restoration of Endodontially Treated Teeth			01			03			02	05
10.	Surgical Endodontics			02			04			02	08
11.	Tooth discoloration & Bleaching			02			02			02	06
12.	Diagnosis & management of orofacial pain			02			02			01	05
13.	Endodontic & Periodontal Interrelationships			02			04			02	08
14.	Dental Traumatology			03			05			02	10



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### FIXED PROSTHODONTICS

#### PRINCIPLES OF OCCLUSION

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Evaluation of occlusion</li> <li>• Functional and para functional movements</li> <li>• Occlusal trauma</li> <li>• Occlusal therapy</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Record centric and eccentric occlusion</li> <li>• Accurately record the occlusion including competency in using facebow and articulation and understand when these techniques are applicable</li> <li>• Apply knowledge of occlusion in the assessment and management of teeth</li> <li>• Evaluate occlusal interferences and occlusal trauma</li> <li>• Demonstrate the effects of pathogenic occlusion</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## INTERDISCIPLINARY INTERFACES AND MOUTH PREPARATION

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Implications of the inter-relationship between prosthodontics and other clinical disciplines like periodontics and endodontics.</li> <li>• Assess the endodontic, periodontic and orthodontic status of teeth relevant to their potential use in support of prosthesis</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Coordinate management of patient requiring endodontic and/or periodontal treatment before, during and after prosthodontics treatment</li> <li>• Evaluate endodontic, periodontic and orthodontic status of teeth before proceeding with fixed prosthodontic treatment</li> <li>• The relevance of inter-relationship between fixed prosthodontics treatment and overall restorative care along with long term maintenance and function</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## FULL COVERAGE RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in :</p> <ul style="list-style-type: none"> <li>• Indications &amp; limitations of full coverage restorations</li> <li>• Different types of full coverage restorations</li> <li>• Principles of tooth preparation</li> <li>• Atraumatic management of soft tissues</li> <li>• Impression materials and impression techniques</li> <li>• Execution of all the stages in the fabrication of full coverage restorations (from tooth preparation to insertion)</li> <li>• Delivery of interim restorations</li> <li>• Luting agents</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Thoroughly plan a case for full coverage restorations</li> <li>• Select appropriate material based on the functional and esthetic demand</li> <li>• Demonstrate an understanding of the principles of tooth preparation</li> <li>• Execute all the stages in the fabrication of full coverage restorations</li> <li>• Deliver provisional restorations</li> <li>• Demonstrate an understanding of clinical aspects of luting agents</li> <li>• Communicate effectively with lab</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PARTIAL COVERAGE RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in :</p> <ul style="list-style-type: none"> <li>• Indications &amp; limitations</li> <li>• Different types of partial coverage restorations</li> <li>• Principles of tooth preparation</li> <li>• Atraumatic management of soft tissues</li> <li>• Impression materials and impression techniques</li> <li>• Execution of all the stages in the fabrication of partial coverage restorations (from tooth preparation to insertion)</li> <li>• Delivery of interim restorations</li> <li>• Luting agents</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Thoroughly plan a case for partial coverage restorations</li> <li>• Select appropriate material based on the functional and esthetic demand</li> <li>• Demonstrate an understanding of the principles of tooth preparation</li> <li>• Execute all the stages in the fabrication</li> <li>• Deliver provisional restorations</li> <li>• Demonstrate an understanding of clinical aspects of luting agents</li> <li>• Communicate effectively with lab</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## RESIN BONDED RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in :</p> <ul style="list-style-type: none"> <li>• Indications &amp; limitations of resin bonded restorations</li> <li>• Different types of resin bonded restorations</li> <li>• Principles of tooth preparation</li> <li>• Atraumatic management of soft tissues</li> <li>• Impression materials and impression techniques</li> <li>• Execution of all the stages in the fabrication of resin bonded restorations (from tooth preparation to insertion)</li> <li>• Luting agents</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Thoroughly plan a case for resin bonded restorations</li> <li>• Select appropriate restoration based on the functional and esthetic demand</li> <li>• Demonstrate an understanding of the principles of tooth preparation</li> <li>• Execute all the stages in the fabrication (from tooth preparation to insertion)</li> <li>• Demonstrate an understanding of all the clinical aspects of adhesive agents</li> <li>• Communicate effectively with lab</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## INTERIM FIXED RESTORATIONS

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Biological, mechanical and aesthetic requirement of interim restorations</li> <li>• Types of interim restorations</li> <li>• Materials and procedures</li> <li>• Cementation</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Plan interim restorations</li> <li>• Demonstrate understanding for preparation of teeth and selection of material</li> <li>• Fit restorations using appropriate luting agent</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ Viva</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PONTIC DESIGN

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"><li>• Pontic classification</li><li>• Selection of pontic design appropriate for the case</li><li>• Biological, mechanical and aesthetics considerations for successful pontic design.</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Assess pontic space, arch contour and gingival architecture</li><li>• Provide appropriate pontic design based on the assessment of pontic space &amp; architecture</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Appropriate range of clinical cases for observational and personal treatment</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ Viva</li><li>• OSCE</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## AESTHETICS, DESCRIPTION OF COLOUR AND COLOUR APPLICATION

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide knowledge and skill in:</p> <ul style="list-style-type: none"><li>• Description of colour</li><li>• Shade matching</li><li>• Aesthetic parameters</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Apply knowledge of colour application in fixed prosthesis</li><li>• Understand the need for proper shade matching for fixed prosthesis</li><li>• Design the prosthesis keeping in view the acceptable aesthetics of the patient.</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ Viva</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

**TABLE OF SPECIFICATIONS**

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1.	Principles of occlusion			03			05			02	10
2.	Interdisciplinary interfaces & mouth preparation			03			05			02	10
3.	Full coverage restorations			07			10			03	20
4.	Partial coverage restorations			07			10			03	20
5.	Resin bonded restorations			03			10			02	15
6.	Interim fixed restorations			03			05			02	10
7.	Pontic design			02			03			02	07
8.	Aesthetics, description of colour & colour application			03			03			02	08



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### PEDIATRIC DENTISTRY

#### MANAGEMENT OF PAIN, ANXIETY & BEHAVIOUR

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• General behavioral concepts</li> <li>• Non pharmacologic and pharmacologic management of anxiety and behavior</li> <li>• Methods of pain control</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Recognize normal and abnormal behavior patterns in children/adolescents.</li> <li>• Apply knowledge of behavioral patterns and psychology in the management of anxiety and anxiety related behavior in the dental setting.</li> <li>• Deliver comprehensive restorative care and exodontia for children under GA</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PREVENTION AND MANAGEMENT OF ORAL DISEASES IN CHILDREN

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Prevention, diagnosis and management of dental caries</li> <li>• Diagnosis and management of pulpal diseases</li> <li>• Prevention, diagnosis and management of periodontal disease</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Construct and deliver effective and appropriate preventive, restorative (including endodontic) and surgical treatment plans for children</li> <li>• Deliver full coverage restorations for endodontically treated teeth &amp; badly mutilated teeth</li> <li>• Deliver appropriate and effective preventive and interceptive periodontal programmes for children/adolescents</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## ANOMALIES OF PRIMARY AND PERMANENT DENTITION

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"><li>• Diagnosis and management of abnormalities in tooth eruption, structure, form and number</li><li>• Diagnosis and management of intrinsic staining</li><li>• Disturbances of eruption and exfoliation</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Diagnose and execute management options for anomalies of primary and permanent dentition</li></ul>	<ul style="list-style-type: none"><li>• Work place (clinical) experience</li><li>• Clinical cases for observational and personal treatment</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ VIVA</li><li>• OSCE</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## THE PEDODONTIC ORTHODONTIC INTERFACE

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• Recognition of malocclusion</li> <li>• Extraction in mixed dentition</li> <li>• Analysis and management of space in the mixed dentition</li> <li>• Orthodontics and dental trauma</li> <li>• Complications of orthodontic treatment</li> <li>• TMJ disorders</li> <li>• Cleft lip &amp; palate</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Recognize and diagnose problems in the developing dentition</li> <li>• Provide space maintainers</li> <li>• Communicate effectively with orthodontists to provide best possible treatment.</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars in orthodontic department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## MEDICALLY COMPROMISED CHILDREN

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"><li>• Medically compromised children</li><li>• Children with special needs</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Demonstrate an understanding of the impact of systemic diseases and organ transplantation on soft and hard tissues and the delivery of oral and dental care.</li><li>• Diagnose, plan and provide safe and effective treatment for children with conditions which may make them more prone to oral diseases or which may complicate the delivery of oral care.</li></ul>	<ul style="list-style-type: none"><li>• Work place (clinical) experience</li><li>• Clinical cases for observational and personal treatment</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS)</li><li>• Written Examination/ VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PAEDIATRIC ORAL MEDICINE AND PATHOLOGY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide information about and experience in:</p> <ul style="list-style-type: none"> <li>• Oro facial infections</li> <li>• Ulcerative and vesiculobullous lesions</li> <li>• Pigmented, vascular and red lesions</li> <li>• Epulides and exophytic lesions</li> <li>• Gingival enlargements</li> <li>• Premature exfoliation of primary teeth</li> <li>• Oral pathology in the new born infant</li> <li>• Diseases of salivary glands</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Diagnose mucosal, soft and hard tissue pathology occurring in and around the mouth from birth through adolescence recognise pathology which requires investigation and management with or by other specialties</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

**TABLE OF SPECIFICATIONS**

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1.	Management of pain, anxiety and behavior			03			07			05	15
2.	Prevention & management of oral diseases in children			10			15			05	30
3.	Anomalies of primary and permanent dentition			10			10			05	25
4.	The pedodontic orthodontic interface			03			04			03	10
5.	Medically compromised children			04			03			03	10
6.	Pediatric oral medicine & pathology			04			03			03	10



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### PERIODONTOLOGY

#### GINGIVAL DISEASES

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Classification of gingival diseases</li> <li>• Local &amp; systemic risk factors associated with gingival diseases</li> <li>• Microbiology &amp; histopathology</li> <li>• Evaluation of clinical features</li> <li>• Use of advanced diagnostic techniques &amp; investigations</li> <li>• Non surgical &amp; surgical management</li> </ul>	<p>The trainee should be able:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the different types of gingival diseases</li> <li>• Evaluate local &amp; systemic risk factors of the disease</li> <li>• Diagnose, assess prognosis and plan treatment for patients who require non surgical and surgical therapy</li> <li>• Execute non surgical &amp; surgical management</li> <li>• Monitor and evaluate the effectiveness of all forms of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## PERIODONTAL DISEASES

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Classification of periodontal diseases</li> <li>• Local &amp; systemic risk factors associated with periodontal diseases</li> <li>• Microbiology &amp; histopathology</li> <li>• Evaluation of clinical &amp; radiographic features</li> <li>• Evaluation of bone loss &amp; pocket depth</li> <li>• Use of advanced diagnostic techniques &amp; investigations</li> <li>• Non surgical management</li> <li>• Surgical management (Periodontal flaps, osseous &amp; mucogingival)</li> </ul>	<p>The trainee should be able:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the different types of periodontal diseases</li> <li>• Evaluate local &amp; systemic risk factors contributing to the disease</li> <li>• Evaluate extent of periodontal disease</li> <li>• Diagnose, assess prognosis and plan treatment for patients who require non surgical and surgical therapy</li> <li>• Demonstrate an understanding of various flap techniques</li> <li>• Execute non surgical &amp; surgical management</li> <li>• Monitor and evaluate the effectiveness of all forms of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## FURCATION, THE PROBLEM AND ITS MANAGEMENT

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Classification of furcation defects</li> <li>• Risk factors for furcation lesions</li> <li>• Evaluation of furcation defects</li> <li>• Non-surgical &amp; surgical management</li> </ul>	<p>The trainee should be able:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the different types of furcation defects</li> <li>• Evaluate risk factors contributing to the development of furcation lesions</li> <li>• Evaluate different types of furcation lesions</li> <li>• Diagnose, assess prognosis and plan treatment for patients who require non-surgical and surgical therapy</li> <li>• Execute non-surgical &amp; surgical management</li> <li>• Monitor and evaluate the effectiveness of all forms of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## GINGIVAL RECESSION

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Classification of gingival recession</li> <li>• Risk factors for gingival recession</li> <li>• Evaluation of mucogingival defects</li> <li>• Non-surgical &amp; surgical management</li> </ul>	<p>The trainee should be able:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the different types of recession</li> <li>• Evaluate risk factors contributing to gingival recession</li> <li>• Diagnose, assess prognosis and plan treatment for patients who require non-surgical and surgical therapy</li> <li>• Execute non-surgical &amp; surgical management</li> <li>• Monitor and evaluate the effectiveness of all forms of treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS)</li> <li>• Written Examination/ VIVA</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## IMPLANTOLOGY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Implant components &amp; systems</li> <li>• Principles of osseointegration &amp; factors affecting it</li> <li>• Clinical &amp; radiographic evaluation of a patient for implants</li> <li>• Formulation of treatment plan including planning of numbers, position &amp; angulation of implants</li> <li>• Execution of surgical &amp; prosthetic phase</li> <li>• Post operative care &amp; evaluation</li> <li>• Management of biological, biomechanical &amp; functional problems</li> </ul>	<p>The trainee should be able:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the implant components &amp; systems</li> <li>• Evaluate risk factors for osseointegration</li> <li>• Evaluate the patient clinically &amp; radiographically for implants</li> <li>• Devise a treatment plan paying particular attention to the number, position and angulation of implants</li> <li>• Execute the surgical &amp; prosthetic phase of treatment</li> <li>• Monitor and evaluate the implants</li> <li>• Manage problems related to implant placement &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic simulation laboratory exercises</li> <li>• Work place (clinical) experience</li> <li>• Clinical cases for observational and personal treatment</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

**TABLE OF SPECIFICATIONS**

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1	Gingival Diseases			05			15			05	25
2	Periodontal Diseases			05			15			05	25
3	Furcation : The problem & its management			03			10			02	15
4	Gingival Recession			03			10			02	15
5	Implantology			05			12			03	20



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## CURRICULUM FOR MDS IN OPERATIVE DENTISTRY

### PREVENTIVE AND COMMUNITY DENTISTRY

#### PREVENTIVE DENTISTRY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"> <li>• Levels of prevention</li> <li>• Preventive strategies for dental caries and periodontal diseases</li> <li>• Association of caries and periodontal diseases with risk factors</li> <li>• Risk assessment</li> <li>• Minimal Invasive Dentistry</li> </ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of levels of preventive dentistry</li> <li>• Execute all the preventive strategies for caries and periodontal diseases</li> <li>• Assess risk factors for caries and periodontal diseases</li> <li>• Apply the principles of minimal invasive dentistry</li> <li>• Promote health education</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace (clinical) experience</li> <li>• Appropriate range of clinical cases for observational and personal treatment</li> <li>• Extramural training</li> <li>• Attend trainee seminars within department</li> <li>• Attendance at suitable courses</li> <li>• Attendance at suitable meetings</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li> <li>• Written Examination/ VIVA</li> <li>• OSCE</li> </ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

## ORAL EPIDEMIOLOGY

Objectives	Learning Outcomes	Teaching & Learning Methods	Assessments
<p>To provide in depth knowledge and skill in:</p> <ul style="list-style-type: none"><li>• Concepts of oral epidemiology</li><li>• Epidemiological studies and tools</li><li>• Epidemiology of oral diseases</li><li>• Use of indices for oral conditions</li></ul>	<p>The trainee should be able to:</p> <ul style="list-style-type: none"><li>• Apply knowledge to carry out epidemiological studies</li><li>• Investigate disease problems in the community</li></ul>	<ul style="list-style-type: none"><li>• Workplace (clinical) experience</li><li>• Extramural training</li><li>• Attend trainee seminars within department</li><li>• Attendance at suitable courses</li><li>• Attendance at suitable meetings</li><li>• Independent study</li></ul>	<ul style="list-style-type: none"><li>• Workplace based assessments (CBD, DOPS, Mini-CEX, MSF)</li><li>• Written Examination/ VIVA</li></ul>



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

TABLE OF SPECIFICATIONS

Sr. No	Topic	Knowledge			Skill			Attitude			%
		C1	C2	C3	P1	P2	P3	A1	A2	A3	
1	Preventive Dentistry			20			30			10	60
2	Oral Epidemiology			15			20			05	40



## Research

The resident will be required to undertake a research project and to present the result for examination in the form of a thesis. They will be encouraged to present and publish the results of the project in refereed journals.

Rules and regulations regarding the research component is available at university website

<http://www.szabmu.edu.pk/downloads#thesis>

The guidelines for synopsis and thesis writing is available at University website

<http://www.szabmu.edu.pk/content/downloads/guidelines-for-synopsis-writing.pdf>

<http://www.szabmu.edu.pk/content/downloads/guidelines-for-thesis-writing.pdf>





## Models of Learning

Practice of this specialty requires a range of skills (thinking, mental visualization, knowledge, manual dexterity, communication, investigative, management) which will be developed systematically through a number of suitably designed learning opportunities. Learning outcomes will be matched with appropriate instructional strategies. Trainees will undertake their learning in following ways

- Guided theoretical learning during formal and timetabled periods which will be geared towards developing an understanding of the subject by critical appraisal and synthesis of the classical and contemporary literature through individual and group activities
- Technical skills development through systematic simulation laboratory exercises.
- Learning at the workplace by supervised clinical training sessions
- Clinical meetings
- Learning from peers through journal club review and case discussion sessions
- Problem solving exercises
- Extra mural training
- Self-directed and independent study

### **Methods of Assessment**

Assessment of trainees will cover the cognitive, psychomotor and affective domains. It will take two forms

- Formative Assessment
- Summative Assessment

### **Formative Assessment**

It is the continuous assessment of progress and competence. It will be conducted through workplace based assessment throughout the training. Assessment will be undertaken by a range of assessors and will cover a range of procedures appropriate to the stage of training. Formative assessment will include

- Directly observed practical skills (DOPS)
- Case based discussion (CbD)
- Mini clinical examination exercises (Mini-CEX)
- Multiple source feedback (MSF)

### **Summative Assessment**

Summative assessment will be held twice

- Intermediate Module (At the end of second year)



# SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY

- Final Examination (After the completion of 4 years of training)

The level of performance required for passing the exam will depend on the knowledge and skills necessary for acceptable performance and will not be adjusted to regulate the number or proportion of persons passing the examination. The pass point will be determined by careful analysis and judgment of acceptable performance.

## Record of Clinical Cases

The trainees will be required to keep a record of the allocated clinical work in a log book. It will be the responsibility of trainee to keep the log book up to date with the signature of the faculty certifying the work.

Apart from the log book, a case book will also be maintained for the multidisciplinary cases.





**ALLOCATED CLINICAL WORK**

Sr. No	Description	Total Number of Cases
1	Amalgam Restorations	100
2	Tooth Coloured / Aesthetic Restorations	150
3	Endodontics	150
4	Paediatric Pulp Therapies (Pulpotomies, Pulpectomies)	75
5	Fixed Prosthesis (PFM, All Ceramic, Veneers)	50
6	Surgical Endodontics (Apicectomies, Hemisections, Root Amputations)	25
7	Core Build-ups	75
8	Pin Retained Restorations	50
9	Implants	03
10	Scaling/Root Planning	50
11	Surgical Periodontology (Recession, Furcation Involvement etc.)	05
12	Full Mouth Rehabilitation	05



## Supervision of Trainees and Feedback

In the early stages of training, trainees will be closely assessed to determine their competence base. The level of supervision initially will be close to ensure patient safety and allow the gauging of ability and potential for independent progression. As supervised tracking shows development of competence, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period such that towards the end, the trainee will be primarily log monitored for procedures appropriate to the competencies of individual trainee. Informal appraisals by the trainer will be undertaken throughout the training period in order to monitor and advise on a trainee's progress and training needs. A confidential record between the trainer and trainee will be kept of these meetings, which will occur at least twice a year. All assessments will be supported by structured feedback for trainees. Trainees who are unable to achieve the appropriate standard in an assessment or examination may, with the agreement of their trainers, repeat that examination or assessment but they need to be aware of, and comply with examination regulations. Counseling is an important component of trainee care and access will be provided for educational support. Early identification of trainees unsuitable for a career in operative dentistry or experiencing difficulty with training is essential, in order to provide appropriate support and guidance.

### **Trainer and Supervisors' Training**

The quality and ability of the trainers is an important element in successful training. Trainers must possess appropriate experience, commitment, knowledge and skill. All trainers and supervisors must undertake Continuing Professional Development and Audit. It is expected that trainers will be in possession of a teaching certificate or equivalent, and engage in a teaching and learning program depending on local arrangements.

### **Learning Resources, Facilities**

The resources and facilities of the Department of Operative Dentistry include state-of-the art clinics, phantom head laboratory, high-tech conference room, and a resident's work room. The clinic is modernized with LCD screens to access digital patient records and scheduling. All computers in the department are networked so information can be accessed from any area. Research laboratories are separate from the department and located nearby. The conference room is outfitted with the latest audiovisual technology to assist in presentations and teaching. Relevant journals and texts are



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available in the library. The resident's room is designed to be a work space for residents and is outfitted with network computers, helping students to become effective and independent learners.

### Program evaluation

The program director will continue to ensure that the program is fit for purpose in that it provides the trainee with the appropriate knowledge, skills, attitudes and competencies required to meet the requirements of a specialist.

Program evaluation will be carried out after every two years according to the CIPP model of evaluation. Any suggested updates will only be made following appropriate consultation with stakeholders, including trainees and lay members.





**Table of Specifications**

**Mid Term Assessment (MDS Operative Dentistry)**

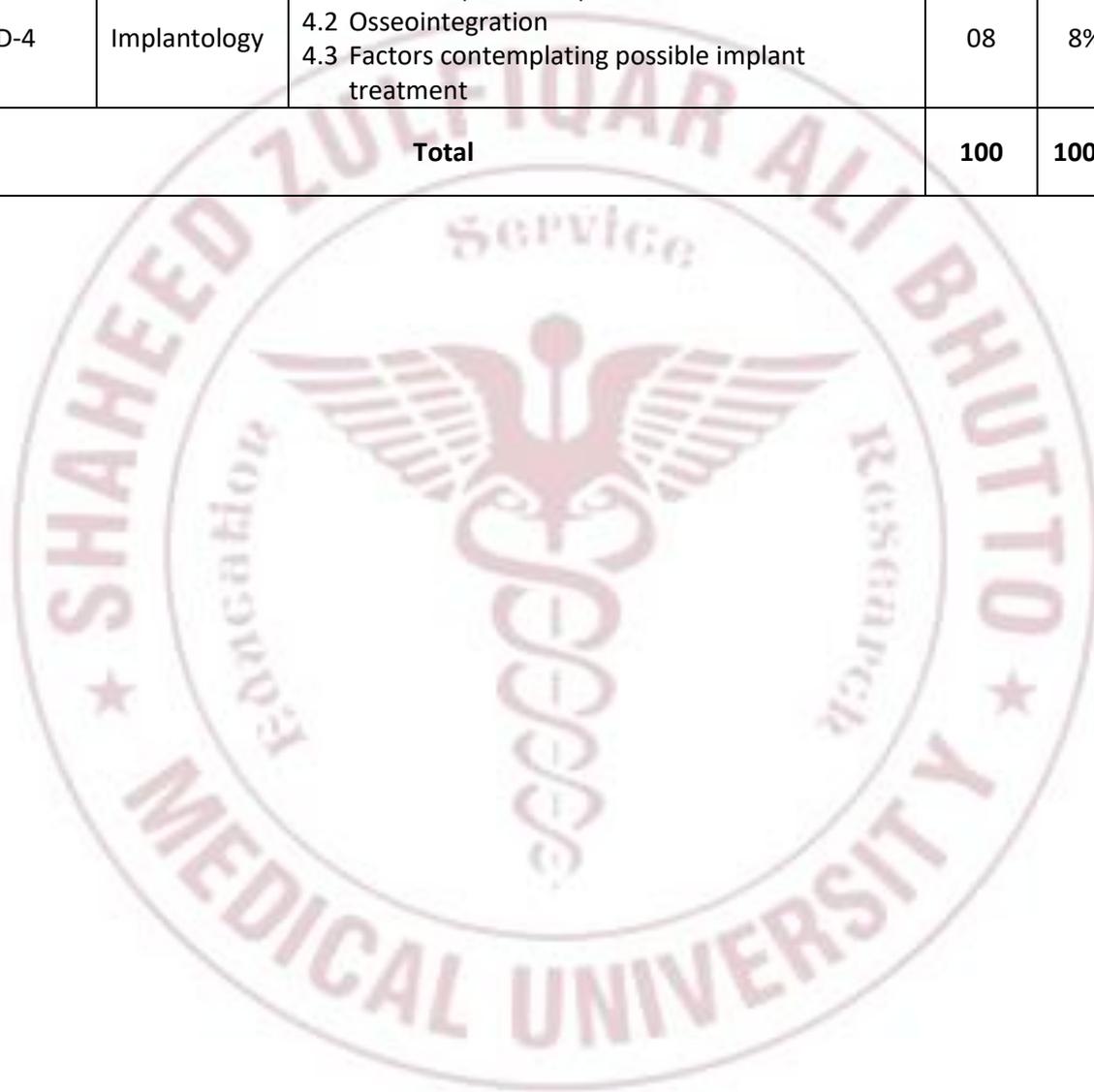
TOS ID	Topic	MCQs	%
Cor-OD-01	Infection Control	4	4%
Cor-OD-02	Occlusion		
Cor-OD-03	Oral Radiology		
Cor-OD-04	Introduction to Research		

TOS ID	Subject	Topic	MCQs	%
OD-1	Operative Dentistry	1.1 Cariology (Etiology, Pathophysiology, Histology, Risk Assessment, Diagnosis) 1.2 Esthetic considerations in diagnosis & treatment planning 1.3 Restorative Materials (Chemistry, clinical applications) 1.4 Pulp Dentin Complex 1.5 Direct restorations 1.6 Tooth Discolorations (Classification, Etiology, Investigations, Diagnosis) 1.7 Preventive Dentistry	40	40%
OD-2	Endodontics	2.1 Pulpal and periradicular diseases and lesions of endodontic & non endodontic origin (Classification, Pathogenesis, Correlation of symptoms & signs with histopathology, Investigations, Diagnosis) 2.2 Vital pulp therapies (Relevant biology, anatomy, physiology, pathology, microbiology and technical requirements in relation to vital pulp therapies, Diagnosis) 2.3 Revascularization/Regenerative Endodontics (Biological basis of revascularization/regenerative endodontic procedures) 2.4 Non-surgical root canal treatment (Materials and Armamentarium, Anatomy and Components of root canal system, Objectives)	40	40%



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		and guidelines for all stages of root canal treatment) 2.5 Normal & Altered Endodontium 2.6 Dental Traumatology (Classification of dental trauma, Clinical and Radiographic examination, Biology of wound healing and Tissue reaction, Diagnosis)		
OD-3	Pediatric Dentistry	3.1 Management of pain, anxiety & behavior 3.2 Pediatric endodontics	08	8%
OD-4	Implantology	4.1 Dental implant components 4.2 Osseointegration 4.3 Factors contemplating possible implant treatment	08	8%
<b>Total</b>			<b>100</b>	<b>100%</b>





**TOS for MTA Practical**  
**(MDS Operative Dentistry & Endodontics)**

Number of OSCE Stations: 10

Marks: 100

Time: 7 min each station

<b>TOS ID</b>	<b>Subject</b>	<b>No. of Stations</b>
OD-1	<b>Operative Dentistry</b>	04
OD-2	<b>Endodontics</b>	04
OD-3	<b>Pediatric Dentistry</b>	01
OD-4 & OD-5	<b>Implantology &amp; Oral Radiology</b>	01
	<b>Total</b>	<b>10</b>



**TOS FOR EXIT FINAL EXAMINATION**  
**(MDS Operative Dentistry & Endodontics)**

**PAPER-A & B**

TOS ID	Subject	Topic	MCQs	SAQs
OD-11	Operative Dentistry	11.1 Patient assessment & treatment planning 11.2 Cariology (Management of Dental Caries) 11.3 Tooth Discolorations (Management) 11.4 Tooth surface loss 11.5 Restorative periodontal interrelationships 11.6 Complex restorations	20	04
OD-12	Endodontics	12.1 Pulpal and periradicular diseases and lesions of non-endodontic & endodontic origin (Management) 12.2 Vital pulp therapies (Protocols of different vital pulp therapies) 12.3 Revascularization/Regenerative Endodontics (clinical considerations, protocols, outcomes & potential future impact in endodontics) 12.4 Non-surgical root canal treatment (Treatment planning & execution of endodontic treatment) 12.5 Non-surgical root canal retreatment 12.6 Surgical Endodontics 12.7 Dental Traumatology (Management of traumatic injuries) 12.8 Endodontic periodontal interrelationships	40	08
OD-13	Fixed Prosthodontics	13.1 Treatment planning for fixed restorations 13.2 Impression Materials 13.3 Partial coverage restorations 13.4 Full coverage restorations 13.5 Resin bonded restorations 13.6 Provisional restorations	20	04
OD-14	Pediatric Dentistry	14.1 Anomalies of primary & permanent dentition (Anomalies of number & shape, defects of enamel, defects of dentin, anomalies secondary to systemic disturbances, syndromes affecting teeth) 14.2 Pedodontic orthodontic interface	10	01
OD-15	Implantology	15.1 Evaluation & treatment planning of a patient for implants	10	02
OD-16	<b>Journals</b> (Last four years JOE, Dental Update, BDJ, PODJ)		-	01
<b>Total</b>			100	20



**TOS for Final Exit Examination**  
**(MDS Operative Dentistry & Endodontics)**

There will be two parts of this examination

**1. Theory written examination**

a. **Paper A** (100 MCQs) Specialty (Operative Dentistry & Endodontics) **100**

**Marks**

b. **Paper B** (20 SEQs/SAQs) Specialty (Operative Dentistry & Endodontics) **100**

**Marks**

**2. Practical and Viva**

2.1 Five (05) finished cases (03 cases relevant to speciality and 02 cases requiring multidisciplinary approach) (05 Min each-10 Marks each) **50 Marks**

2.2 OSCE (10 Stations, 07mins each, 07marks each) **70 Marks**

Interactive station of communication skill – 1 station  
Static stations 5 stations  
Procedural Skill 2 stations  
Interactive stations (Viva) – 2 Stations

2.3 Four (04) short cases (15 Min each -10 marks each) **40 Marks**

2.4 One (01) Long case (60 Min -40 Marks) **40 Marks**

**3. Thesis Defense** (30Mins presentation followed by Q&A) **100 Marks**

**Total** **500 Marks**



**Recommended Reading Material**

**BOOKS: (Latest Edition)**

1. Pathways of the pulp
2. Ingle Endodontics
3. Problem Solving in Endodontics (Gutmann)
4. Fundamentals of Operative Dentistry (James Summitt)
5. Art and science of Operative dentistry (Sturdevant)
6. Contemporary Fixed Prosthodontics (Fujimoto)
7. Pediatric Dentistry (Welbury)
8. Dental Materials (Phillips)
9. Text book of Preventive and Community Dentistry (Hiremath)
10. Oral Radiology Principles and Interpretation (White &Pharoah)
11. Contemporary Implant Dentistry (Carl E Misch)

**JOURNALS: (Last four years)**

1. Journal of Endodontics
2. Dental Update
3. British Dental Journal
4. Pakistan Oral & Dental Journal