



**ALTAMASH INSTITUTE OF DENTAL MEDICINE
(JINNAH SINDH MEDICAL UNIVERSITY)**

**BDS Third Year
Junior Operatives
Study Guide**

Introduction

This course is designed to augment the basic theoretical knowledge and practical skills taught to the students in 3rd year. The theoretical component of the course will be disseminated through small group discussion, while the basic clinical procedures will be taught through demonstration and hands-on practice on phantom heads as well as orientation of procedures in the OPD. The rationale of this course is to reinforce the theoretical and practical concepts of the students in a simulated environment, as well as the initial orientation to the procedures and protocols practiced in the OPD on patients. This would provide the basis and be supplemented in final year with gradual implementation of the skills learned in this course to actual clinical situations.

Outcomes:

By the end of this course, students will be able to perform basic procedures pertinent to Operative Dentistry in a simulated environment and OPD.

Teaching and learning:

- Flipped Classroom (FC)
- Demonstrations (DEMO)
- Tutorials
 - a. Cased Based Learning (CBL)
 - b. Small Group Discussion (SGD)

Assessment tools:

1. Multiple Choice Questions: (MCQs)
 - One Correct Type
2. Mini Clinical Examination (Mini CEx)
3. Observed Structured Clinical Examination (OSCE)



**ALTAMASH INSTITUTE OF DENTAL MEDICINE
(JINNAH SINDH MEDICAL UNIVERSITY)**

s.n o.	Topic	Course Objectives: By the end of the course, 3rd year students will be able to:	Teaching method	Assessment Tool
1	Basics Of Occlusion	<ul style="list-style-type: none"> • Define basic terminologies of occlusion. • Identify the various incisor and molar relationships. • Discuss the tooth contacts during different phases of mandibular movement. • Discuss the importance of restoring occlusion in restorative dentistry. 	-SGD	-MCQs
2	Pulpal & Periapical Diseases	Differentiate the various types of pulpal diseases and periradicular lesions of pulpal origin.	-SGD	-MCQs
3	History Taking	<ul style="list-style-type: none"> • Discuss the importance of a thorough medical and dental history • Discuss the common medical diseases that may influence treatment planning. 	-SGD	-MCQs -Mini CEX
4	Clinical & Radiographic Examination	<ul style="list-style-type: none"> • Discuss ADA guidelines for prescribing dental radiographs • Discuss elements of a clinical examination. • Describe various vitality tests, their advantages and limitations. 	SGD	MCQs
5	Patient Evaluation & Problem Oriented Treatment Planning	<ul style="list-style-type: none"> • Discuss merits and demerits of treatment- and problem-oriented treatment planning. • Discuss aesthetic parameters to be considered when restoring the dentition. • Discuss the importance of 	SGD	MCQs



**ALTAMASH INSTITUTE OF DENTAL MEDICINE
(JINNAH SINDH MEDICAL UNIVERSITY)**

		dental record keeping.		
6	Processing And Interpretation Of Radiographs	<ul style="list-style-type: none"> • Describe x-ray equipment, films and processing of x-rays. • Describe importance of radiographs in operative dentistry. • Discuss the indications and limitations of these radiographs for diagnostic purposes. • Discuss the biological effects and risks associated with radiations. • Justify varying horizontal and vertical cone angulations to create image shift. • Describe the SLOB rule. 	SGD	MCQs
7	Cross Infection Control	<ul style="list-style-type: none"> • Define cross infection. • Explain the exposure risks in dentistry. • Discuss different methods of cross infection control in dental office. • List universal/ standard precautions for cross infection control • Describe blood borne infections • Describe methods of hand hygiene • Discuss vaccination/ immunization of dental health care professionals • Discuss elements of personal protective equipment (PPE) • Discuss how to prevent needle stick injury 	SGD	MCQs



**ALTAMASH INSTITUTE OF DENTAL MEDICINE
(JINNAH SINDH MEDICAL UNIVERSITY)**

		<ul style="list-style-type: none"> • Discuss needle stick injury management • Discuss dental waste disposal • Discuss management of dental sharps 		
8	Sterilization And Disinfection	<ul style="list-style-type: none"> • Differentiate among Sterilization, Disinfection and Asepsis. • Discuss the importance of sterilization and disinfection. • Discuss elements of a sterilization plan. • Describe various methods used for sterilization and methods to monitor effectiveness of sterilization. • List chemicals that are used for disinfection. 	SGD	MCQs
9	Review Of Restorative Materials	<p>Discuss the composition, properties, merits and shortcomings of materials used for direct restorations:</p> <ul style="list-style-type: none"> ○ Amalgam, ○ GIC, RMGIC ○ Composite. 	FC	MCQ OSCE
10	Patient And Operator Positioning	Describe the importance of correct patient and operator positioning during operative procedures.	SGD	MCQs
11	Amalgam Restorations	<p>Class I</p> <ul style="list-style-type: none"> • Describe class I cavity preparation. • Discuss ways of improving resistance and retention form of 	SGD	MCQs



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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<p>a simple class I restoration.</p> <ul style="list-style-type: none">• Discuss cavity preparation of a class VI lesion.• Describe placement of amalgam in simple class I cavities.• Describe other mechanical features to improve resistance and retention.• Discuss mercury hazards and hygiene <p>Class II</p> <ul style="list-style-type: none">• Explain the outline form of a class II cavity preparation.• Discuss ways of improving resistance and retention form of simple class II restorations.• Describe for amalgam restorations:<ul style="list-style-type: none">- Box only preparation,- Slot preparation.• Describe placement of amalgam in simple class II cavities.• Describe other mechanical		
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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<p>features to improve resistance and retention.</p> <ul style="list-style-type: none"> • Discuss importance of matricing and wedging. • List various types of matrix band systems and wedges. • Describe the various parts of a tofflemire matrix band. 		
12	Bonding To Enamel And Dentine	<ul style="list-style-type: none"> • List advantages of adhesive techniques over non-adhesive methods. • Explain why enamel is a favorable substrate for bonding. • Differentiate structure of dentin from enamel. • Discuss the effect of smear layer on dentin bonding. • Explain the effect of Configuration Factor (C-factor) on bonding. • Explain the effect of acid conditioning on enamel. • Discuss difficulties in dentine conditioning. • Discuss chemistry of primers and adhesive resin (bonding 	- SGD	MCQs



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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<p>agent).</p> <ul style="list-style-type: none"> • Explain the importance of hybridization for effective dentine bonding. • Describe 1st- 7th generation adhesives. • Explain steps involved in enamel and dentin bonding. 		
13	Direct Composite Restorations	<ul style="list-style-type: none"> • Discuss esthetic considerations in diagnosis and treatment planning • Describe different esthetic parameters to be taken into account before planning a restoration • Discuss the chemistry of anterior composites. • Describe factors influencing shade selection. • Discuss guidelines for shade matching and various methods of shade selection. • Describe cavity preparation for class III restorations. • Outline cavity preparation for 	-SGD	-MCQs



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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<p>class IV restorations.</p> <ul style="list-style-type: none">• Discuss importance of matricing and wedging.• Outline composite placement technique for class III and IV restorations.• Discuss different instruments used for finishing and polishing of composite restorations and their use.• Explain the technique for diastema closure with direct composite• Describe indications, contraindications, advantages & disadvantages for composite resin as a posterior restorative material.• Outline features of a class I and class II cavity for composite restoration.• Justify the need of pre-wedging in class II composite restorations.• Describe for composite restorations:		
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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<ul style="list-style-type: none"> • - Box only preparation, • Classify matrix systems available for composite restorations. • Compare circumferential and sectional matrix systems. • Justify different methods used to minimize polymerization shrinkage. • Discuss different methods to create a tight contact for class II composite restorations. • Describe various resin polymerization equipment. • Discuss cavity preparation and restoration of a class VI lesion. 		
14	Class V Restorations	<ul style="list-style-type: none"> • Describe cavity preparation for class V restorations. • Describe techniques for isolating class V restorations. • Discuss restorative materials available for restoring class V lesions. • List ways of improving retention of class V composite 	-SGD	- MCQs



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(JINNAH SINDH MEDICAL UNIVERSITY)**

		restorations.		
15	Instruments In Endodontics	<ul style="list-style-type: none"> • List the instruments in the basic set, appropriate for various endodontic procedures. • Describe the general physical properties of instruments. • Describe the design of common canal preparation instruments and their proper use of to prevent breakage within canal. • Explain the basis for sizing and taper of hand operated instruments. • Describe nickel titanium rotary instruments. 	SGD	MCQs
16	Pulp Anatomy	<ul style="list-style-type: none"> • Correlate the shape of pulp system to root anatomy. • List laws of canal orifice location. • Outline pathologic factors that may cause alterations in pulp anatomy. • Describe major components of the pulp space and variations in the pulp system in apical third. • Describe accessory canals. • Discuss relationship of anatomic, radiographic and actual location of apical foramen. • Describe variations in pulp anatomy resulting due to: <ul style="list-style-type: none"> ○ Developmental defects, 	SGD	MCQs



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(JINNAH SINDH MEDICAL UNIVERSITY)**

		<ul style="list-style-type: none"> ○ With age. ● Identify internal and external anatomy of teeth in sagittal and cross section on the given pictures. 		
Practical Skills			Teaching method	Assessment Tool
By the end of the course, 3rd year students will be able to:				
1	History Taking	Obtain history related to dental issues by asking all the pertinent questions.	DEMO	Mini CEX
2	Clinical And Radiographic Examination	<ul style="list-style-type: none"> ● Take an informed consent from the patient ● Perform a thorough extraoral and intraoral examination on patients presenting to the dental OPD. ● Perform vitality tests on patients. ● Interpret findings of various vitality tests in clinical setting. ● Prescribe appropriate radiographs for diagnosis of pulpal diseases. ● Correlate radiographic findings to history and clinical examination 	DEMO	Mini CEX OSCE
3	Interpretation Of Radiographs	<ul style="list-style-type: none"> ● Identify normal anatomic structures of maxilla and mandible on different radiographs (Periapical, Bitewing, Occlusal, Orthopantomogram [OPG]) ● Interpret pathological findings seen on these radiographs 	SGD	Mini CEX OSCE
4	Endodontic Diagnosis	<ul style="list-style-type: none"> ● Diagnose pulpal and periapical 	SGD	OSCE



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(JINNAH SINDH MEDICAL UNIVERSITY)**

	And Treatment Planning	<p>pathosis in patients based on history, clinical and radiographic examination.</p> <ul style="list-style-type: none"> • Develop a treatment plan. • Take an informed consent before any treatment. 	CBL	
5	Dental Unit	<ul style="list-style-type: none"> • Identify all parts of a dental unit. • Describe the use of different parts of the dental unit. • Demonstrate correct operation of different parts of dental unit. • Perform accurate placement of different attachments (high speed, slow speed handpieces) to the dental unit. 	DEMO	OSCE
6	Patient And Operator Positioning	<ul style="list-style-type: none"> • Demonstrate the correct patient and operator position when treating patients in the dental OPD. • Perform application and removal of rubber dam on patients when carrying out a restorative procedure. 	DEMO	OSCE ER Exam
7	Restorations	<p>AMALGAM RESTORATIONS</p> <ul style="list-style-type: none"> • Perform Class I, II cavity preparation and amalgam restorations on patients. • Demonstrate mercury waste handling and disposal <p>COMPOSITE RESTORATIONS</p>	DEMO	OSCE ER Exam



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		<ul style="list-style-type: none"> • Perform preoperative evaluation before placing an anterior composite restoration. • Prepare Class III and IV cavity for composite placement. • Perform finishing and polishing of composite restorations. • Perform preoperative evaluation for a posterior composite restoration. • Perform placement of appropriate matrix and wedges on patients when restoring teeth with composite. • Prepare Class I, II and VI cavity preparation for composite restorations. <p>CLASS V RESTORATIONS</p> <ul style="list-style-type: none"> • Diagnose root caries based on clinical and radiographic findings. • Perform on patients: • Class V cavity preparation and restore with appropriate material. 		
8	Instruments In	<ul style="list-style-type: none"> • Identify visible changes in 	DEMO	OSCE



**ALTAMASH INSTITUTE OF DENTAL MEDICINE
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	Endodontics	<p>instruments that will predispose them to breakage.</p> <ul style="list-style-type: none"> • Identify basic set of instruments appropriate for various endodontic procedures. • Identify the design of common canal preparation instruments and learn their proper use of to prevent breakage within canal. • Identify nickel titanium rotary endodontic instruments. 		
9	Root Canal Treatment	<p>Perform on extracted single rooted teeth the following steps of root canal treatment:</p> <ul style="list-style-type: none"> ○ Access cavity preparation; ○ Working length determination; ○ Pulpectomy, cleaning, shaping and obturation of root canal space. 	DEMO	OSCE

Reading Sources:

Text Book:

- Sturdevent's Art and science of Operative Dentistry. Latest edition
- Summit's fundamentals of Operative Dentistry. (Latest edition)
- Pickard Manual of Operative Dentistry Latest Edition by Avijit Banerjee
- Torabinejad Endodontic principles and practice (Latest edition)
- Eric Whaites Essentials of Dental Radiology Latest edition



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Internet resources: With easy access to digital library students will use internet resources with added time flexibility to enrich and update their knowledge and its application.

Library: It provides wealth of resources, space to study alone or in a group. It also provide world of books to discover and borrow.

Assessment Criteria :

Knowledge:

- MCQs (Multiple Choice Questions) are used to asses objectives covered in each module.
- A MCQ has a statement or clinical scenario followed by four options (likely answer).
- Students after reading the statement/scenario select ONE, the most appropriate response from the given list of options.
- Correct answer carries one mark, and incorrect 'zero mark'. There is no negative marking.
- Students mark their responses on an answer sheet provided by examination department.

Skills:

- OSCE: Objective Structured Clinical Examination:
- Each student will be assessed on the same content and have same time to complete the task.
- Comprise of 12-25 stations.
- Each station may assess a practical tasks include practical skills and application of knowledge
- Stations are observed, interactive, application of knowledge based and rest.
- In Observed and Interactive Stations these will be assessed by internal or external examiners through structured viva or a task.
- Application of knowledge Stations: it will be static stations in which there will be pictures, clinical scenarios with related questions for students to answer on the provided answer copy.
- Rests: It is a station where there is no task given and in this time student can organize his/her thoughts.



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AIDM Internal Assessment Policy

Students will be assessed to determine achievement of learning objectives through the following:

- The method of examination comprises theory exam which includes MCQs in final year Professional examination, and practical examination by OSCE (Objective Structured Clinical Examination) in End rotation Clinical Examination.
- Student's behaviors and attitudes will be observed during all academic activities.

Annual Examination:

Content of this course will be assessed in final year professional examination through OSCEs and MCQs.

Course Evaluation:

- Pass/fail ratio of continuous assessments will be evaluated.
- 75% attendance is mandatory to be eligible for annual professional examination
- Feedback will be taken
 - Regarding course from students and faculty
 - Student feedback regarding faculty
 - Faculty feedback of students

Teaching Faculty:

Prof. Dr. Zahid Iqbal

Professor, Head of Department

Dr. Saqib Hameed

Assistant Professor

Dr. Afifa

Senior Lecturer

Dr. Maha

Demonstrators

Dr. Zainab

Demonstrators



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For queries:

Department of Medical Education

Dr. Shaur Sarfaraz

Director & Assistant Professor

shaur.sarfaraz@altamash.pk

Dr. Maria Ghani

Lecturer

maria.ghani@altamash.pk