Course Specifications

Course Title:	**Pre-Clinical Endodontics**
Course Code:	**RDS 323**
Program:	**Bachelor of Dentistry [BDS]**
Department:	**Restorative Dental Sciences [RDS]**
College:	**College of Dentistry**
Institution:	**Majmaah University**

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A. Course Identification

1. Credit hours: 4 (2+2+0)
2. Course type **a.** University ☐ College ☐ Department **X** Others ☐ **b.** Required **X** Elective ☐
3. Level/year at which this course is offered: 3rd Year / 1st and 2nd Semester
4. Pre-requisites for this course (if any)**: RDS 213**
5. Co-requisites for this course (if any)**:NA**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	25%
2	Blended	NA	NA
3	E-learning	N	NA
4	Correspondence	NA	NA
5	Other - Laboratory	90	75%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	90
3	Tutorial	-
4	Others (specify)	-
	Total	120
Other Learning Hours*		
1	Study	45
2	Assignments	15
3	Library	15
4	Projects/Research Essays/Theses	-
5	Others (specify)	-
	Total	75

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

It is a one-year course, given as a one hour lecture in the 1st semester and one practical session in the 1st semester and one hour lecture and one practical session in the 2nd semester of the same year.

Pre-clinical Endodontics is a course which should help the students to understand the basics of Endodontics, like diagnosis and management of various dental defects, root canal anatomy, instrumentation and restorative procedures. This will help them for future advanced clinical training.

2. Course Main Objective

1. Recognize basic endodontic instruments and use them correctly
2. Identify patent pulp chambers and canals by knowledge of pulp anatomy and use of radiography.
3. Recognize canal systems with extreme curvatures, calcifications and other complicating features.
4. Appropriately prepare access cavities for all tooth categories.
5. Correctly determine working length.
6. Prepare uncomplicated root canals for all tooth categories using hand instruments and the step back technique.
7. Adequately fill root canals of all teeth using cold lateral compaction technique.
8. Identify, prevent and manage procedural errors that occur during root canal treatment.
9. Self-assess the quality of root canal performed

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge:**	
K 1.11	Recall the internal anatomy of teeth with their variations and diseases process.	K1
2	**Skills :**	
S 3.9	Critically Analyze various endodontic instruments and designs, access opening, interpret radiographs and predict the appropriate treatment outcome by root canal fillings.	S3
S 6.6	Demonstrate hand eye co-ordination during, designing various endodontic diagnosis and treatment procedures.	S6
3	**Competence:**	
C 2.12	Demonstrate leadership skills and coordinate with fellow colleagues to submit a group task or assignment	C2

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction and orientation** 1. Review of objectives and requirements of the course 2. An overview of endodontic therapy 3. Endodontic case presentation 4. Indications for root canal therapy 5. Contraindications for root canal therapy	1
2	**Endodontic instruments** 1. Hand instruments 2. Rotary instruments 3. Isolation (principles and rationale) 4. Rubber dam materials	1
3	**Internal anatomy of root canal system** 1. Pulp chamber, pulp horns 2. Root anatomy 3. Number of roots 4. Number of canals 5. Apical foramen	1
4	**Endodontic Access Cavity Preparation** 1. Morphology of anterior, premolar and molar teeth 2. Principles of endodontic cavity preparation	1
5,6	**Working Length determination** 1. Estimated working length 2. Corrected working length 3. Electronic apex locator	2
7,8	**Cleaning and shaping of root canal system** 1. Principles - Radicular cavity preparation 2. Instruments and methods for radicular cleaning and shaping - Determination of the tooth length - Step-back technique	2
9	**Root canal Irrigants** 1.Mode of action 2. Concentration 3. Different Techniques	1
10, 11	**Root Canal Filling Materials and Obturation** 1. Importance of obturation 2. Characteristics of an ideal root canal filling materials 3. Extension of root canal filling 4. Lateral Condensation technique	2
12, 13	**Intracanal medicaments, Temporizations** 1. Antibacterial agents 2. Mode of action	2

	3. Calcium hydroxide	
14	**Diagnosis and Treatment Planning** 1. Patient history (chief complaint, present dental illness and medical history) 2 . Clinical examination (vital signs, extra and intra- oral examination, clinical tests and periodontal evaluation) 3 . Radiographic examination (interpretation, and importance of radiograph in diagnosis)	1
	SECOND SEMESTER	
15	**Isolation** 1. Principles and rationale 2. Types of isolation 3. Rubber dam materials (armamentarium) 4. Application of rubber dam	1
16, 17	**Case Selection & Treatment Planning** 1. Patient history 2. Clinical examination 3. Radiographic examination interpretation, root anatomy, conditions inside and outside the tooth)	2
18 19	**Histology and Physiology of the pulp** 1. Function 2. Development and anatomy 3. Histology 4. Age changes 5. Pulp response to inflammation Pulpodental physiology	2
20 21	**Microbiology and Immunology** 1. Role of bacteria in pulpal and periradicular diseases 2. Pathways of pulpal and periradicular infections 3. Flora of the root canal and periradicular lesions Methods of control of root canal infection	2
22, 23	**Pulp reaction to caries and dental Procedures** 1. Relationship between pulp and dentin. 2. Pulpal reactions to dentinal caries 3. Effect of various restorative procedures on the pulp 4. Effect of local anesthesia on the pulp 5. Postoperative sensitivity and preventive measures	2
24, 25	**Pulpal Diseases** 1. Hypremia 2. Reversible pulpitis 3. Irreversible pulpitis 4. Internal resorption 5. Chronic hyperplastic pulpitis 6. Necrotic pulp	2
26,	**Peri- Radicular Diseases**	3

27, 28	1. Periradicular lesions of pulpal origin (endodontic origin) 2. Non-endodontic periradicular lesions Differential diagnosis	
Total		28

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1	**Knowledge**		
K 1.11	Recall the internal anatomy of teeth with their variations and diseases process.	Lectures, Practical lab	Recall/Factual Questions in Writtenexams,Practical exam, Weekly assesment ,Quizz, Assignments/OSPE
2	**SKILLS**		
S 3.9	Critically Analyze various endodontic instruments and designs, access opening, interpret radiographs and predict the appropriate treatment outcome by root canal fillings.	Lectures, Practical lab	Conceptual, Analytical or Evaluative questions in Written exams , Practical exam, Weekly assesment , Assignments, OSPE,QUIZ
S 6.6	Demonstrate hand eye co-ordination during, designing various endodontic diagnosis and treatment procedures.	Demonstrating Wax mounting in extracted tooth and various Endodontic procedures. Group discussions/phantom lab	Weekly assessment and Practical exam.
3	**Competence:**		
C 2.12	Demonstrate leadership skills and coordinate with fellow colleagues to submit a group task or assignment	Students will be divided into small groups and tasks will be assigned to the group	The group task / Assignment will be supervised closely and the work done by each student will be evaluated using rubrics

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1 + 2	Week 5 & Week 20	05%
2	Midyear exam – Theory	Week 15	20%
3	Behavior / Professionalism	During the course	05%
4	Assignment/Research	During the course	5%
5	Weekly Assessment	During the course	25%
6	Final Practical Exam	Week 27	20%
7	Final Theory Exam	Week 29	20%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
The student shall avail the consultancy during the displayed office hours

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	✓ Cohen's Pathways of the pulp. ✓ Kenneth M. Hargreaves and Louis H.Berman- Authors ✓ Edition 2016 ✓
Essential References Materials	✓ Endodontics Principles and Practice... ✓ Torabinejad M,Walton RE.- Authors ✓ Edition2009. ✓ Problem solving in endodontics, prevention, identification and management. ✓ James L. Gutmann and Paul E. Lovdahl- Authors ✓ Edition 2010 ✓
Electronic Materials	None
Other Learning Materials	None

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	✓ Lecture room suitable for 30 students ✓ Fully equipped lab for practical sessions
Technology Resources (AV, data show, Smart Board, software, etc.)	✓ Projector ✓ Smart board with all the accessories ✓ Internet
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	✓ Preformed resin tooth blocks ✓ Extracted tooth

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	✓ Course Evaluation Survey ✓ Quality of Exam Survey
	Faculty	✓ CLO Mapping with teaching & assessment. ✓ Course Blueprinting ✓ Grade Analysis ✓ Psychometric Analysis
	Peers	Grade Verification
Extent of achievement of course learning outcomes	Faculty member / Quality assurance committee	✓ Direct assessment outcome analysis ✓ Course report preparation
Quality of learning resources, etc	Students / Faculty	✓ Academic advising survey ✓ Student experience survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	**Department Council**
Reference No.	**********
Date	**********