Course Specifications

Course Title:	**Oral Radiology**
Course Code:	**MDS 223**
Program:	**Bachelor of Dentistry [BDS]**
Department:	**Maxillofacial surgery and Diagnostic sciences [MDS]**
College:	**College of Dentistry**
Institution:	**Majmaah University**

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A. Course Identification

1. Credit hours: 4 (2+1+1)
2. Course type **a.** University ☐ College ☐ Department **X** Others ☐ **b.** Required **X** Elective ☐
3. Level/year at which this course is offered: 1st Year / 1st and 2nd Semester
4. Pre-requisites for this course (if any)**: NA**
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	50%
2	**Blended**	NA	NA
3	**E-learning**	NA	NA
4	**Correspondence**	NA	NA
5	**Other -Clinicals**	30	50%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	**30**
2	**Laboratory/Studio**	**-**
3	**Tutorial**	**-**
4	**Others** (Clinicals)	**30**
	Total	**60**
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

This course is an introduction to the radiology for the dental students. It deals with the basic knowledge on radiology, its history and major milestones in the development of radiology. This course is included under the department of maxilla facial dental surgery. It starts in the 2nd year 1st semester and comprises of 1 hour lecture and 2 hours practical session each week hence the contact hours comprises of 3 hours per week. The same contact hours are applied in 2nd year 2nd semester as in 1st semester but in 2nd semester the students are exposed to clinical sessions rather than the radiology lab or practical's. The credit hours given to it are 2 (1 for theory and 1 for practical's) in 2nd year 1st semester.

Oral radiology acts as a first investigation for the clinical diagnosis or oral and maxillofacial disorders and hence holds a valuable position in understanding the lesions and disroders.

2. Course Main Objective

1. To make the students know the basic of radiology.
2. To make the students understand the need to protect themselves, patient and the society at large from unnecessary exposure to radiation.
3. To make the students understand the disadvantages and advantages of radiation not only in the field of medicine but also otherwise
4. To make the students understand the procedures for taking a diagnostic radiograph

3. Course Learning Outcomes

	CLOs	Aligned-PLOs
1	**Knowledge:**	
K1.8	Recognize the normal craniofacial and oral complex structures on the radiograph based on the basics of radiology	K1
2	**Skills:**	
S2.1	Explain the need for infection control, radiation protection and suggest appropriate radiographs for adequate diagnosis	S2
S7.1	Perform different radiographic procedures for diagnosis and treatment planning for various dental disorders.	S7
3	**Competence:**	
C2.6	Demonstrate professional competency to work with a team in taking required radiographs	C2

C. Course Content

S.No	List of Topics	Contact hours
A	1st Semester	
1	Schedule / Introduction to Radiology • Highlight of the discovery of x rays • Early x ray tubes • About the first radiograph	1
2	Radiation Physics – 1 • Atomic Structure • Periodic table • X ray Tube Head • Bremmstrahlung Radiation • Characteristic Radiation	1
3	Radiation Physics – 2 • Power supply to x ray tube • Transformers • Auto transformers	1
4	Radiation Biology – 1 • Different types of radiation affecting the human cell • Interaction of x rays with the human cell • Effects of x rays on the human cell	2
5	Radiation Biology – 2 • Direct effect • Indirect effect • Stochastic effect • Deterministic effect	1
6	Health Physics • To know the properties of x rays • The use of these properties in different ways • To understand the effects of x rays	1
7	Infection Control In Radiology • Increase effectiveness in understanding the need for infection control • The best methods to be used for adequate infection control • The use of available resources • Methods of upgradation	2
8	Image Characteristics • Introduction • Classification of different image characteristics • Difference between each image characteristics • Importance of these characteristics • Effect of these characteristics on the final image	1

9	**Radiographic Landmarks** • **Introduction** • **Classification of different radiographic landmarks** • **Importance of these landmarks** • **Association of these landmarks to any pathology** • **Differentiation of landmarks from pathology**	1
10	**Processing of X Ray Films** • **Introduction** • **Requirements of processing solution** • **Composition of processing solution** • **Advantages** • **Disadvantages**	1
11	**Digital Radiography – 1** • **Introduction to digital radiography** • **Digital / analog** • **Types of digital radiography**	1
12	**Digital Radiography – 2** • **Image processing** • **Advantages and disadvantages** • **Applications**	1
13	**Differential Diagnosis of Periapical Radiolucency** • **Classification of periapical radiolucency** • **There clinical signs and symptoms** • **Radiographic appearance** • **Radiographic Differentiation**	1
	2nd Semester Theory	
1	**Introduction** • Course schedule • Components of course	1
2	**Principles of Radiographic Interpretation – 1** • Course syllabus • Components of course • The importance of radiographic interpretation	1
3	**Principles of Radiographic Interpretation – 2** • The Method of visualizing a radiograph • The Method of interpreting a radiograph	1
4	**DD of Periapical Radiolucencies** • Classification of periapical radiolucencies • Radiographic features of periapical radiolucencies • Various modifications in radiographic appearances	1
5	**DD of Periapical Radiopacities** • Classification of periapical radiopacities • Radiographic features • Various modifications in radiographic appearances	1

6	**Differential Diagnosis of Pericoronal Radiolucencies** • Classification of pericoronal radiolucencies • Radiographic features • Various modifications in radiographic appearances	2
7	**Occlusal Radiography** • Indications • Procedure • Image outcomes by applying different techniques	1
8	**Panoramic Radiography – 1** • Indications • Milestones in development of panoramic radiograph • Concept of tomography	1
9	**Panoramic Radiography – 2** • Procedure • Advantages and Limitations • Interpretation	1
10	**Localization Technique** • The importance of localization technique • Classifications of different techniques • Interpretation of localization technique	1
11	**TMJ Imaging** • Classification • Importance and limitations of each imaging modality • Interpretation	2
12	**Sialography** • Classification • Clinical significance • Short note on interpretation	1
13	**Radiographic Techniques** Classification of different techniques	1

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**		
K1.8	Recognize the normal craniofacial and oral complex structures on the radiograph based on the basics of radiology	Lectures, discussion,	Written Exams, oral exams, quizzes, Weekly Assess Practical exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2	**Skills :**		
S2.1	Explain the need for infection control, radiation protection and suggest appropriate radiographs for adequate diagnosis	Demonstrations Discussions	Written Exams, oral exams, quizzes, Weekly Assess Practical exam
S7.1	Perform different radiographic procedures for diagnosis and treatment planning for various dental disorders.	Demonstrations, group discussions, lectures	oral exams, Weekly Assess;Practical exam
3	**Competence:**		
C2.6	Demonstrate professional competency to work with a team in taking required radiographs	Group discussion and demonstrations	Weekly Assess Practical exam Oral exam

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1 + 2	Week 4 & Week 19	10%
2	Midyear exam – Practical	Week 13	10%
2	Midyear exam – Theory	Week 14	20%
3	Behavior / Professionalism	During the course	05%
4	Assignment	During the course	05%
5	Weekly Assessment	During the course	15%
6	Oral Exam	Week 12 & Week 24	5%
6	Final Practical Exam	Week 14	10%
7	Final Theory Exam	Week 16	20%

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

E. Student Academic Counseling and Support

Arrangements for the 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	✓ Oral radiology – principles and interpretation by Stuart C White and Michael W Pharoah 7th edition
Essential References Materials	✓ Essentials of dental radiography and radiology by Eric Whaites 5th edition

Electronic Materials	✓ Essentials of dental radiography and radiology – e book
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)	✓ IOPA X Ray Machine ✓ Panoramic X Ray Machine ✓ Soft tissues specimens and casts of oral structures

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.	**Meeting No.6**
Date	**30/08/1440**