Jordan University of Science and Technology
Faculty of Applied Medical Sciences
Department of Allied Dental Sciences
2013-2014
Course Syllabus

Course Information	
Course Title	ORAL RADIOLOGY I
Course Code	ADS 351
Credit hours	2 Credit Hours, 1 Theoretical and 1 Practical
Prerequisites	None
Instructor	Arwa Mahasneh
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Course Description

Study of the nature and production of x-rays and basic principles and procedures in oral radiology. Emphasis is on radiation physics, radiation biology radiation protection, basic intraoral radiographic techniques, and image processing and mounting procedures.

Method of delivery:
Lecture/discussion demonstration laboratory application and reading assignments

Resources

1. Essentials of Dental Radiography for Dental Assistants and Hygienists, 9th ed. ON Johnson, EM Thomson, Pearson/Prentice Hall, 2010.
2. Exercises in Oral Radiographic Techniques: A Laboratory Manual. 3rd ed. EM Thomson, Pearson/Prentice Hall, 2010

3. Radiographic Interpretation for the Dental Hygienist JI Haring, LJ Lind, WB Saunders Co. 1993

Assessment	Percentage
Continuous assessment	60%
Theoretical part / First Exam	15%
Theoretical part / Second Exam	15%
Laboratory Assignments	20%
Lab quizzes	10%
Final	40%
Final theoretical Exam	20%
Final practical	20%

Teaching & Learning Methods
There will be one lecture for one hour every week during which discussion may take place. the lectures will be given using power point presentations

Course Objectives	Percentage
Identify radiation risk factors the population and advocate the need for requirements for controlled x-ray production based on knowledge of radiation biology	10%
Assume responsibility and accountability for radiographic services by demonstrating safe operation of dental x-ray equipment based on knowledge of radiation physics	10%
Demonstrate competency in placing, exposing, processing, mounting, and critique for acceptability, bitewing and periapical radiographs	10%
Provide individualized care to the client by selecting the appropriate radiographic projection, recognizing the advantages, disadvantages and limitations of each type	10%
Employ techniques and utilize radiographic equipment which will provide clients **.1** with the maximum radiation protection	10%
Interpret an intraoral dental radiograph based on knowledge of the radiographic **.2** appearance of the tooth, tooth development, and supporting anatomical structures	10%
. Incorporate intraoral photography into client assessment.	10%
Interpret an intraoral dental radiograph based on knowledge of the radiographic	10%

appearance of the tooth, tooth development, and supporting anatomical structures	

Additional Notes

Evaluate and implement engineering controls and work practices in the darkroom for the purposes of infection control and ergonomics	10%
Assess, plan, implement, and evaluate quality assurance mechanisms for obtaining diagnostic radiographic imaging	10%

Exams	Students are required to sit for the 3 semester examinations (1st, 2nd, and final) in addition to the final practical exam
Cheating	Cheating during exam will result in dismissal from the exam hall and the student will be penalized according to JUST regulations All academic work submitted to fulfill a course requirement is expected to be result of each student's own thought, research and self-expression. A student will have committed plagiarism if he or she reproduces someone else's work without acknowledging its source; or if a source is cited which the student has not cited or used. Examples of plagiarism include: submitting a research paper obtained from a commercial research service, the Internet, or from another student as if it were original work; making simple changes to borrowed materials while leaving the organization, content, or phraseology intact; or copying material from a source, supplying proper documentation, but leaving out quotation marks. Plagiarism also occurs in a group project if one or more of the members of the group does none of the group's work and participates in none of the group's activities, but attempts to take credit for the work of the group.
Attendance and due dates	JUST requires the faculty member to assign ZERO grade (35%) if a student misses 10% of the classes without an excuse. - Questions are welcome during lectures. - Tardiness by (15) minutes or more will be counted as an absences - All laboratory assignments are due at the beginning of your lab session on the due date specified (will be announced in the lecture). The laboratory assignment grade will be reduced by one point for each day late - The student is responsible for all material covered in lecture and laboratory sessions as well as assigned readings and handouts -
Tests and evaluation methods	Tests cover lecture material, laboratory activities, and assigned readings and handouts. The final examination will be comprehensive. Tests will be given in the lecture classroom during the regularly scheduled class period. Tests are not released. It is up to the student to schedule an appointment with the instructor if he/she wishes to review the test. Students who do not take tests during the scheduled dates are to follow the steps below: 1. Schedule a meeting with instructor. 2. Have ready documentation of excused absence. If absence is unexcused, student will receive a grade of zero (0) for the test not taken. 3. For excused absence, a make-up test date will be set up AFTER securing instructor permission. Make-up test will cover same course content as scheduled test. Make-up test format will be decided by instructor. Possible formats will include but not be limited to: a. oral exam b. essay c. short answer d. listing e. demonstration/performance f. combination of the above **Practical part** • Student has to attend the assigned labs and clinics in the assigned dates and times • Student has to fulfill the requirements listed below in order to pass the practical part of the course • To consider the requirement as met, it has to be signed from the assigned supervisor. • The grade will be calculated out of 10 for each requirement distributed as below: **(Vert.ang 1** mark**, Hor.ang** 1 mark**, Packet.repla 1** mark **, exposure** 1 mark **, others: Handling processing** 1 mark**, Centering the PID** 1 mark **, Infection control, professionalism communication 3** marks,) the grade out of 10 will be CONVERTED to out of 1, each requirement equals 1 mark **,** number of requirements is 40, the grade earned out of 40 will be recalculated out of 20%

Requirements are:

1. 5 PA Lower anterior adults
2. 5 PA Lower premolar adults
3. 5 PA Lower molars adults
4. 5 PA Upper anterior adults
5. 5 PA Upper premolar adults
6. 5 PA Upper molars adults
7. 5 HBW adults
8. 3 HBW Pedo
9. 1 PA ant pedo
10. 1 PA post pedo
11. 3 VBW extra

Type of rad.ph	Pt's name date	Vert.ang (1)	Hor.ang(1)	exposure(1)	Packet.repla (1)	Centering the PID(1)	others (1)	Infection control, profession comm (3)	Final grade (10)	Sig

Feedback: Concerns or complaints should be expressed in the first instance to the course instructor. If no resolution is forthcoming then the issue should be brought to the attention of the Department Chair and if still unresolved to the Dean. Questions about the material covered in the lecture, notes on the content of the course, its teaching and assessment methods can be also sent by e-mail

Week	Topic	Reading	Lecturer
1.	LECTURE Orientation to course ADS351		Arwa Mahasneh
2.	I. Historical perspective II. Radiographic film A. Composition B. Latent image formation C. Classifications D. Types of projections E. Care and storage LABORATORY* Darkroom orientation and film processing procedures	Chapter 1-History of Dental Radiography Chapter 7-Dental X-ray Film In class activity-film packet construction Chapter 8-Dental X-ray Film Processing Lab Exercise 1-Radiographic Film Processing and Darkroom Design and Maintenance Chapter 3-The Dental X-ray Machine: Components and Functions, pg. 21-25 and Procedure Box 3-1 on pg. 30 only.	Arwa Mahasneh
2.	A. Film Processing B. components of the x-ray unit	Chapter 9	Arwa Mahasneh
3.			
	LECTURE* III. Bitewing radiographs A. Assessment of radiographic need B. Packet placement C. Vertical angulation D. Horizontal angulation E. Centering the film in	Chapter 14-The Bitewing Examination also on pages 62-63 in textbook	Arwa Mahasneh

	the beam		
4.	LECTURE IV. Periapical radiographs A. Introduction to bisecting and Paralleling techniques B. Packet placement C. Vertical angulation D. Horizontal angulation E. Centering the film in the beam	Chapter 12-Intraoral Radiographic Procedures In class activity-flashlight demonstration of shadow cast principles	Arwa Mahasneh
5.	1st exam	All reading assignments	Arwa Mahasneh Arwa Mahasneh
6.	LECTURE V. Radiation physics A. Types of radiation B. Characteristics of x-rays C. Sources of radiation exposure LABORATORY Bitewings and anterior periapicals- D. Rinn XCP holders	Chapter 2-Characteristics and Measurement of Radiation, pg. 9-13 and pg. 15-19	Arwa Mahasneh
7.	LECTURE VII Production of x-rays B. Requirements for controlled production C. Processes 1.General/bremsstrahlung 2. Characteristic C. Basic interaction with matter 1. Coherent 2. Photoelectric 3. Compton	Chapter 2-Characteristics and Measurement of Radiation, pg. 13-15 Chapter 3-The Dental X-ray Machine: Components and Functions, pg. 25-33	Arwa Mahasneh
	LABORATORY Bitewings and posterior periapicals- Rinn XCP holders		Arwa Mahasneh
8.	LECTURE VIII. Radiation biology A. Ionization B. Theories 1. Direct 2. Indirect C. Factors influencing a biological response D. Dose response curves E. Risk estimates and	Chapter 5-Effects of Radiation Exposure	Arwa Mahasneh

	comparisons		
9.	LECTURE IX. Film mounting X. Recognition of normal radiographic anatomy A. Radiographic appearance of teeth and supporting bone B. Radiographic anatomy of the maxilla C. Radiographic anatomy of the mandible LABORATORY* Film mounting and identification of normal maxillary anatomical landmarks Work on FMS Practical/ practice on real patients	Chapter 18-Mounting and Interpretation Chapter 19-Recognizing Normal Radiographic Anatomy In class activity-slide identification Lab exercise 8-Radiographic Interpretation *Bring textbook and supplemental textbook to lab	Arwa Mahasneh
10.	Test #2	Chapter 4-Producing Quality Radiographs	Arwa Mahasneh
11.	LECTURE* XI. Factors affecting the radiographic image A. Density and contrast B. Beam factors C. Subject factors D. Film factors E. Geometric factors F. Inverse square law	All the reading assignments	Arwa Mahasneh
12.	LECTURE XII. Technique, processing, and handling errors that compromise diagnostic quality XIII. Quality Assurance LABORATORY* Radiographic errors identification/ Practice on Patients	Chapter 16-Identifying and Correcting Undiagnostic Radiographs Chapter 17-Quality Assurance in Dental Radiography Lab exercise 10-Radiographic Technique and Processing Errors *Bring textbook and supplemental book to lab	Arwa Mahasneh
13.	LECTURE* XIV. Radiation Protection A. Patient protection B. Operator protection C. Regulatory Agencies	Chapter 6-Radiation Protection Page 58 Laboratory	Arwa Mahasneh

	LABORATORY* Radiographic errors identification/ Practice on Patients		Arwa Mahasneh
	FINAL EXAM	All reading assignments, handouts, and all activities for lectures and labs	Arwa Mahasneh