

Washtenaw Community College Comprehensive Report

RAD 124 Principles of Radiographic Exposure Effective Term: Winter 2021

Course Cover

Division: Health Sciences

Department: Allied Health

Discipline: Radiography

Course Number: 124

Org Number: 15600

Full Course Title: Principles of Radiographic Exposure

Transcript Title: Prin of Radiographic Exposure

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Course description

Outcomes/Assessment

Rationale: Three-year syllabus review

Proposed Start Semester: Fall 2020

Course Description: This course is a continuation of material presented in RAD 111. The content of this course includes a comprehensive study of atomic theory, radiographic exposure technique, image production using analog and digital mediums, and the appropriate use of radiographic accessory devices. Students will learn theoretical principles for achieving optimal image quality and techniques for reducing patient radiation exposure. Laboratory sessions are included to provide a means of integrating theory with practical applications for use in the clinical setting.

Course Credit Hours

Variable hours: Yes

Credits: 0 – 2

Lecture Hours: Instructor: 30 **Student:** 30

Lab: Instructor: 15 **Student:** 15

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 0 to 45 **Student:** 0 to 45

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: YES (separate sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Prerequisite

RAD 101 minimum grade "C-"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify the x-ray interactions that occur with matter.

Assessment 1

Assessment Tool: Outcome-related multiple-choice questions on the departmental final exam

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 90% of the student will score 75% or above on the questions related to the outcome.

Who will score and analyze the data: Departmental faculty

2. Calculate the appropriate exposure factors necessary to produce an optimal exposure to the image receptor.

Assessment 1

Assessment Tool: Outcome-related multiple-choice questions on the departmental final exam

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 90% of the student will score 75% or above on the questions related to the outcome.

Who will score and analyze the data: Departmental faculty

3. Identify the factors that influence the production of scatter radiation.

Assessment 1

Assessment Tool: Outcome-related multiple-choice on the departmental final exam

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 90% of the student will score 75% or above on the questions related to the outcome.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. List and explain the possible interactions of x-ray photons with matter.
2. List and explain the factors affecting the probability of the photoelectric effect.
3. Explain the importance of the photoelectric effect in the production of a diagnostic radiographic image.
4. List and explain the probability of a Compton interaction.
5. Define milliamperage (mA) and explain its relationship to image receptor exposure.
6. Solve mathematical problems using the inverse square law.
7. Solve mathematical problems using the exposure maintenance law.
8. Solve mathematical problems using the 15% rule.

9. Identify the principle factors that affect the amount of scattered radiation produced during an exposure.
10. Explain how the production of scatter radiation increases the patient's dose.
11. Explain how the radiographer can minimize the effects of scattered radiation during an imaging procedure.

New Resources for Course

No new resources required.

Course Textbooks/Resources

Textbooks

Adler, A., M. & Carlton, R., R.. *Principles of Radiographic Imaging - An Art and Science*, 5th ed.
Delmar Publishers, 2019

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Testing Center

Other: Radiography Lab in OE 121

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>William Nelson</i>	<i>Faculty Preparer</i>	<i>Dec 10, 2019</i>
Department Chair/Area Director: <i>Kristina Sprague</i>	<i>Recommend Approval</i>	<i>Apr 30, 2020</i>
Dean: <i>Valerie Greaves</i>	<i>Recommend Approval</i>	<i>May 12, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Jul 06, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Sep 21, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Sep 21, 2020</i>