SOUTHEAST COMMUNITY COLLEGE
HEALTH SCIENCES DIVISION
RADIOLOGIC TECHNOLOGY
Revision Date: 8/2023

I. CATALOG DESCRIPTION

Course Number:	**RADT 1117**
Course Title:	**Radiographic Physics 1**
Prerequisite(s):	**Admission to the Program**
Catalog Description:	**Essentials of radiographic exposure formulation. Elements contributing to radiographic quality in the areas of density, contrast, recorded detail and distortion. Basic concepts of digital imaging and patient dose.**
Credit Hours:	**2.5**
Class Hours:	**38**
Lab Hours:	**0**
Total Contact Hours:	**38**

II. COURSE OBJECTIVES: *Course will:*

1. Explain diagnostic radiographic equipment
2. Apply the principles of safe radiation practices
3. Describe the production of radiation and its effect on matter
4. Apply the principles of exposure and image production to the clinical setting.
5. Solve exposure problems.
6. Explore digital imaging.

Note: Unit objectives are located in the learning management system within each unit of study

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Participate in labs and correlate activity with theory
2. Correlate radiographic principles with course and apply to clinical
3. Work safely with radiation in clinical and lab setting

B. GENERAL EDUCATION LEARNING OUTCOMES (GELOs)

GELO 5: Analytical, Quantitative, and Scientific Reasoning

Outcome: The student will apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information)*

A. RADIATION PROTECTION

1. Radiation Hazards
2. Radiographer's Role
3. Safety Considerations

B. RADIOGRAPHIC EQUIPMENT, OPERATION, & MANIPULATION; IMAGE QUALITY

1. Radiographic Equipment
2. Ancillary Equipment

3. Prime Factors (Spatial Resolution, Contrast, Distortion)

C. X-RAY PRODUCTION

1. General Concepts of Radiographic Production
2. X-Ray Tube
3. X-Ray Production
4. Radiographic Exposure & Math Applications

D. IMAGE ACQUISITION

1. Manual
2. AEC
3. Compensation Factors
4. Image Recording Systems (Film, CR, DR)

E. RADIATION CONCEPTS & PHOTON INTERACTIONS

1. Atomic Structure
2. Radiation Properties
3. Photon & Matter Interaction

F. PRINCIPLES OF EXPOSURE

1. Exposure Factors
2. Beam Restriction
3. Spatial Resolution
4. Technique Charts

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Carlton, Richard R., Adler, Arlene M. *Principals of Radiographic Imaging, an Art and a Science.* Delmar, Inc., latest edition.

B. Other Resources: Course Study Guide

VI. METHODS OF PRESENTATION/INSTRUCTION

A. A combination of the following items may be used in the course:

1. Lecture
2. Demonstration
3. Learning Activities/Games
4. Handout Materials
5. Class Participation/Presentations
6. Case Studies and Group Work
7. Guest Presenters
8. Websites
9. Power Point slides & videos
10. Pretests and worksheets

VII. METHODS OF EVALUATION

A. Please see course CID for methods of evaluation.

SCC STANDARD GRADING SCALE POLICY:

A+	**95-100**	**C+**	**75-79**
A	**90-94**	**C**	**70-74**
B+	**85-89**	**D+**	**65-69**
B	**80-84**	**D**	**60-64**
		F	**Below 60**

VIII. SPECIFIC COURSE REQUIREMENTS

A. ATTENDANCE: Attendance is crucial to the success of this course. Any class missed could mean valuable missed information which is difficult to obtain. Please notify the instructor of any pending absences or if you wil be late. Excessive absences may result in failing the course.

B. PROGRAM COURSES: Must pass all program courses with a 75% to progress to the next term.

Please see course information document for course policies related to grading, expectations, assignments, assessments, and participation.