

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

I. CATALOG DESCRIPTION

Course Number: RADT 2276
Course Title: Imaging Applications
Prerequisite(s):

Catalog Description: Exploration of advanced concepts of radiographic production, radiographic processing, conservative use of equipment and quality assurance techniques. Application of critical thinking.

Credit Hours: 2.5
Class Hours: 38
Lab Hours: 0
Total Contact Hours: 38

II. COURSE OBJECTIVES: *Course will:*

1. Review the fundamentals of x-ray production as it applies to the equipment and applications associated with equipment use and x-ray production.
2. Review and apply the fundamental components of image quality.
3. Discuss various methods of controlling scattered radiation and construction and efficient use of equipment to aid in controlling scattered radiation.
4. Explain the process of image formation, the construction and operation of image receptors, and processes involved to produce the digital image.
5. Present the broader concepts of Quality Management, including preventive and correctional maintenance, risk management, and radiation safety policies.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

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

1. Correlate equipment use with good practice in Radiology.
2. Apply safe use of equipment to quality management.
3. Apply the fundamental physics of x-ray production and image capture.
4. Recognize the importance of Quality management and its relationship to equipment maintenance and radiation safety.

B. GENERAL EDUCATION LEARNING OUTCOMES

GELO 5: Analytical, Quantitative, and Scientific Reasoning

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

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

A. EQUIPMENT

1. Radiographic Equipment
2. Fluoroscopic Equipment

3. AEC Systems
4. Protective Equipment
5. CR and DR

B. FACTORS THAT AFFECT EXPOSURE RECEPTORS

1. Image Capture
2. Image Formation
3. Types of Image Receptors
4. Exposure Indicators

C. FACTORS THAT AFFECT IMAGE QUALITY

1. Interactions with Matter
2. Proper Exposure Procedures
3. Histogram Analysis
4. Dynamic Range

D. QUALITY MANAGEMENT

1. History
2. Quality Assurance and Quality Control
3. Reject Analysis
4. Patient Satisfaction
5. Risk Management
6. Radiation Safety

E. DIGITAL IMAGING ARTIFACTS AND ERRORS

1. Acquisition
2. Post-acquisition
3. Histogram Errors

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):

Bushong, Stewart C. *Radiologic Science for Technologists*. Mosby Elsevier, current edition.
 Carlton, Richard R., Adler, Arlene M. *Principles of Radiographic Imaging an Art and a Science*.
 Thompson, current edition.
 Papp, Jeffrey *Quality Management in the Imaging Sciences*. Mosby Elsevier, current edition.

B. Other Resources:

Course Study Materials

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Demonstration
3. Problem-solving
4. Learning Activities/ Games
5. Lab Activities
6. Case Studies and Group Work
7. Presentations
8. Power Point
9. Online activities
10. Pretests and worksheets
11. Handout materials

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 will 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.