

Minnesota State College Southeast

RADT 2605: Radiographic Imaging 1

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This introductory course provides the student with the basic elements of radiation physics. Topics include units of measurement, atomic structure, nature and characteristics of radiation, x-ray properties, x-ray machine components, x-ray tube and the production of x-rays. Introductory principles of radiographic exposure will also be presented to include the prime factors, image appearance standards of image exposure, contrast, recorded detail, and distortion, grids, AEC, beam limitation and scatter radiation. (Prerequisites: MATH1220, ENGL1215, BIOL2515) (Prerequisite or concurrent: RADT2601, RADT2611) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 06/16/2009 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Describe the structure of matter & nature of radiation production/properties
2. Gain understanding of prime factors
3. Acquire knowledge of basic x-ray components
4. Explain image acquisition in analog and digital radiography

D. LEARNING OUTCOMES (General)

1. Explain radiation units of measurement
2. Describe the structure of matter, atom, and nature of radiation and x-ray properties
3. Describe the function and proper use of the x-ray tube
4. Explain the production of x-rays
5. Describe x-ray beam filtration and the HVL
6. Analyze construction, purpose, and use of beam limiting devices
7. Describe x-ray interactions to include scatter and secondary radiation
8. Explain the structure, function, & use of radiographic grids
9. Explore the prime factors of exposure
10. Explain the factors that affect photographic properties (contrast & IR exposure/density)
11. Explain the factors that affect geometric properties (recorded detail/spatial resolution & distortion)
12. Explore exposure factors and exposure factor formulation
13. Identify components of analog image receptor system
14. Describe automatic exposure control devices and their use
15. Explain the factors that affect geometric properties
16. Diagnostic X-ray Tubes
17. Grids
18. X-ray Production
19. Interaction of Photons with Matter

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted