

NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

RAD 255 - RADIOGRAPHIC EQUIPMENT (3 CR.)

COURSE DESCRIPTION

Studies principles and operation of general and specialized x-ray equipment. Lecture 3 hours per week.

GENERAL COURSE PURPOSE

The purpose of this course is to familiarize the student with the physical construction and operation of radiographic and fluoroscopic x-ray units.

ENTRY LEVEL COMPETENCIES

Admission into the Radiography Program, to include: RAD 100 Introduction to Radiology and Protection. RAD 111-112 Radiologic Science I-II, or equivalent.

COURSE OBJECTIVES

At the completion of this course the student will be able to:

- A. Describe the electrical system associated with a standard radiographic unit.
- B. Describe the construction and purpose of the high-tension generator (transformer).
- C. Describe the construction and purpose of the rectification circuit.
- D. Describe the components and purpose of the exposure timing system.
- E. Diagram and identify the components of a standard rotating anode x-ray tube.
- F. Describe the components and purpose of mobile x-ray units, to include:
 1. Portable radiographic unit
 2. C-arm fluoroscopic unit
- G. Describe the components and purpose of an image intensification tube.
- H. Describe the theory and principles of body plane radiography (tomography).
- I. List and state the purpose of the following specialized radiographic systems:
 1. Franklin Head Unit
 2. Automatic Chest Unit

3. Mammographic Unit

- J. Describe the theory and components of a digital radiographic system.

MAJOR TOPICS TO BE INCLUDED

- A. The Electrical System and Mains Supply
- B. Components and Controls in X-ray Circuits
- C. High Tension Generators
- D. Fuses, Switches and Interlocks
- E. Exposure Switches and Timers
- F. X-ray Tubes.
- G. Portable and Mobile X-ray Units
- H. Fluoroscopy and Image Intensifiers
- I. Tomographic Equipment
- J. Specialized Radiographic Equipment
- K. Digital Imaging Systems

EXTRA TOPICS

General care and testing of radiographic equipment.

