

Master Syllabus

RAT 1241 - Radiologic Sciences I

Division: Health Sciences

Department: Radiologic Technology

Credit Hour Total: 3.0 **Lecture Hrs:** 3.0

Other Prerequisite(s): Restricted to Majors

Date Revised: November 2014

Course Description:

This course is designed to help the student understand the concepts of electromagnetic energy, electricity, x-ray equipment, production of x-radiation and its interaction with matter. Special radiographic equipment including digital radiography and the concepts of radiation safety and protection will also be presented.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency

Course Outcomes:

Radiographic special equipment

Describe and explain mobile radiography equipment, fluoroscopy equipment, and digital radiography equipment.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

X-ray interactions with matter

Explain the different types of interactions that can take place between x-radiation and matter.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

Concepts of electricity and electromagnetism

Explain the relationship between electricity and electromagnetism and their affects on x-radiation production.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

X-ray production and the emission spectrum

Explain the different types of x-ray production, the emission spectrum, and what influences them.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

Radiation safety and protection

Explain the principles of radiation protection and safety and how they are applied to workers, patients, and the general public.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

Concepts of radiation

Describe the differences between types of radiation, their properties and the standard units of measurement.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

The atom and its relationship to radiation

Explain the relationship between the atom and the different types of ionizing radiation.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

X-ray equipment

Describe the various parts and functions of the x-ray machine, circuit and x-ray tube.

Assessment Method: Locally developed exams

Performance Criteria:

71% or higher achieved

Outline:

Concepts of radiation

The atom

Electromagnetic radiation

Electricity and electromagnetism

X-ray equipment

X-ray production and the emission spectrum

X-ray interaction

Special x-ray equipment including digital radiography

Radiation safety and protection