

## 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

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### 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