

## CUMBERLAND COUNTY COLLEGE

### **Course: RT 220 Equipment Operation and Maintenance I**

**Credits: 2**

#### **Prerequisites**

RT106, RT107, RT110, RT111, RT121, BI107

#### **Co-requisites**

RT201, RT202

#### **Course Description**

This course will provide the student with a review of atomic structure and an understanding of electricity as it applies to radiographic equipment and the production of x-rays. The interactions between x-ray and matter and the relationship between x-radiation, the patient and image formation will be stressed. Upon successful completion of this course, the student will be able to discuss the production of x-rays and determine techniques available to reduce radiation exposure and enhance image formation.

#### **Learning Outcomes**

At the completion of the course, students will be able to:

- Exhibit a basic knowledge of the production of x-radiation and the various types of equipment used in the production of x-rays.
- Exhibit a basic knowledge of Digital Radiography.
- Discuss concepts of PACS.

#### **Topical Outline**

- Digital Imaging Processing
- Digital Radiography
- PACS
- Radiation Concepts
- Electricity and Electromagnetism
- X-Ray Production
- X-Ray Interactions

#### **Required Texts and Other Materials**

Terri L. Fauber, *Radiographic Imaging & Exposure*, 4th Edition Elsevier Mosby, 2013.

James N. Johnson, Terri L. Fauber, *Radiographic Physics and Imaging*, Elsevier Mosby, 2012.

#### **Reference Texts:**

Bushong, Stewart C., *Radiologic Science for Technologists- Physics, Biology and Protection*, 10<sup>th</sup> edition, Elsevier 2013

Carlton and Adler, *Principles of Radiographic Imaging an Art and a Science*, 5<sup>th</sup> edition, Thomson/Delmar Learning, 2013.

Selman, Joseph, *The Fundamentals of Imaging Physics and Radiobiology*, 9<sup>th</sup> edition, Charles C. Thomas, Publisher, 2000.

### **Student Assessment**

Assessment will be accomplished through exams and related student clinical assignments. The grade for this course will be determined as follows:

- Tests = 75%
- Final Exam = 25%

Class absences will be deducted from the course grade as follows:

- 0.50 for each absence and
- 0.25 for each lateness or early departure.

### **Academic Integrity**

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation. Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense. As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

### **Available Resources**

If you are having difficulty with work in this class, tutoring is available through the Success Center. If you think that you might have a learning disability, contact Project Assist at 856.691.8600, x1282 for information on assistance that can be provided to eligible students.

**(List availability of open labs and/or writing center)**

### **Before Withdrawing From This Course**

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA which can limit or eliminate future financial aid in addition to causing academic suspension.