

COURSE OUTLINE

CARD-115

X-Ray Theory

1 Semester Hour

HOWARD COMMUNITY COLLEGE

Description

The student is introduced to techniques necessary to produce radiographs. This course includes discussion of the fundamentals of radiographic exposure, cine film processing, radiographic protection and x-ray theory. Prerequisite: CARD-101. (1 hour weekly)

Overall Course Objectives

Upon completion of this course, the student would be able to:

1. Examine and evaluate radiation safety and protection procedures for patient.
2. Describe the principles of x-ray generation and personnel during cardiovascular procedures.
3. Describe image intensifiers and video imaging.
4. Recognize how to monitor and record dose levels for procedures using TLD and other dosimetry techniques.
5. Summarize the biological effects of ionizing radiation.
6. Compare the significance of long and short-term radiation exposure.
7. Describe the processing of radiographic imaging.

Major Topics

- I. Radiation Protection and Safety
 - A. Occupational exposure
 - B. Patient dose
 - C. Reduction of occupational exposure

- II. Concepts of X-ray Generation and Imaging
 - A. Angiographic Equipment
 - B. Image System
 - C. X-Ray Generator
 - D. X-Ray Tube
 - E. Image Intensifier
 - F. Optical System
 - G. Quality Control

- III. Penetration and Recording of Detail

- A. MAS
 - B. KVP
- IV. Applications of Digital Angiography in the Cath Lab Technique
- V. Cinefilm and processing
- A. Cinefilm
 - i. Characteristics of film
 - ii. Density-exposure relationship
 - iii. Developer influences
 - B. Cinecamera
 - C. Processing
 - D. Processors

Course Requirements

Grading/exams

Grading procedures will be determined by the individual faculty member but will include the following:

Final grades will be calculated on the basis of exams, paper, summarized article, clinical, and class participation.

Writing

Specific writing assignments will be determined by the individual faculty member but will include at least 1000 words of formal writing.

Other Course Information

This is a Cardiovascular Core Course.