NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
RAD 142 – PRINCIPLES OF RADIOGRAPHIC QUALITY II (4 CR.)

Course Description

Presents factors that control and influence radiographic quality, as well as various technical conversion factors useful in radiography. Discusses automatic film processing, sensitometry, and quality assurance testing. Part II of II. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

Introduces the principles of latent image formation and imaging processing. Compares the elements of CR and DR radiography systems. Teaches the principles of Quality Assurance (QA) programs and Quality Control (QC) procedures for imaging departments and how they improve the quality of a radiographic image. Teaches the influences of a variety of technical factors, to include instruction in artifact recognition, rejected image analysis, and quality control testing. Provides correlated practical laboratory exercises that demonstrate the radiographic principles described in the classroom lecture sessions.

Course Prerequisites/Corequisites

Prerequisite: RAD 141
Corequisites: RAD 131, 221

Course Objectives

Upon completing the course, the student will be able to:

1. Describe the effect of x-ray beam alignment and motion on digital image quality.
2. Describe the inherent qualities contained within the latent image signal.
3. Discuss the elements of computer systems and how they gave rise to the standard use of digital medical imaging systems in the 21st century.
4. Describe the creation of diagnostic images in a digital radiology environment.
5. Describe a system for the proper testing and maintenance of image receptors.
6. Explain the significance of proper technique selection in digital radiography.
7. List the various pre-processing and post-processing applications in a typical digital imaging system.
8. List the main systems in the automatic film processor and describe the role of each.
9. Identify and list the method of corrections for various types of imaging artifacts.
10. List the benefits associated with a periodically conducted reject image analysis program.
11. Describe the difference in the capture of digital images by both the CR system and the DR system.
12. Describe the capabilities of the Picture Archiving and Communication System (PACS) and the advantages of imaging informatics.
13. Discuss the practical applications of using automatic exposure control (AEC).

Major Topics to be Included

A. Radiographic Systems
B. Digital Imaging Systems
C. Radiographic Processing
D. Digital Image Processing
E. Image Processing and image Artifacts
F. Systems of Quality Assurance (QA)
G. Quality Control Procedures (QC)
H. Sensitometry
I. Quality Control for Radiographic Equipment
J. Outcomes Assessment for Radiographic Images