Revised 2/06

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

COURSE INFORMATION

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.

Lecture – 3 hours. Laboratory – 3 hours. Total – 6 hours per week.

GENERAL COURSE PURPOSE

Introduces the principles of latent image formation and x-ray film processing. Compares the elements of film-screen radiography systems to digital (CR) 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 film analysis, processor control chart maintenance, 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 Principles of Radiographic Quality I

Co-Requisites: RAD 221 Radiographic Procedures II
RAD 131 Elementary Clinical Procedures I

COURSE OBJECTIVES

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

1. Identify the materials employed in the manufacturing of the emulsion and film base.
2. Describe the construction and features of a modern radiographic cassette.
3. Identify the materials employed in the manufacturing of a digital imaging plate.
4. List the steps involved in the formation of the latent image.
5. Describe a system for the proper testing and maintenance of intensifying screens.
6. Identify the chemical components of the developer solution and describe its activity.
7. Identify the chemical components of the fixer solution and describe its activity.
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 film artifacts
10. List the benefits associated with a periodically conducted reject film analysis program.
11. State the fundamental features of a comprehensive Quality Control (QC) program associated with an automatic film processing system.
12. State the fundamental features of a comprehensive Quality Control (QC) program associated with a digital image processing system.

MAJOR TOPICS TO BE INCLUDED

1. Radiographic Film-Screen Systems
2. Digital Imaging Systems
3. Radiographic Film Processing
4. Digital Image Processing
5. Film Processing and Film Artifacts
6. Systems of Quality Assurance (QA)
7. Quality Control Procedures (QC)
8. Processor Control and Sensitometry
9. Quality Control for Radiographic Equipment
10. Outcomes Assessment for Radiographic Images