

University of Arkansas – Fort Smith

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General Syllabus

RADT 2502 Imaging Equipment

Credit Hours: 2 **Lecture Hours:** 2 **Laboratory Hours:**

Prerequisites: RADT 2432 Principles of Radiation Biology/Protection

Corequisites: RADT 2512 Radiographic Procedures V and RADT 2524 Clinical Education V

Effective Semester: Fall 2013

I. Course Information

A. Catalog Description

Introduces the student to various methods of recording images and relates principles of diagnostic image production and the specific equipment required. Also introduces various advanced imaging techniques and career options in their chosen field.

B. Additional Information

II. Student Learning Outcomes

A. Subject Matter

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

1. Discuss the construction of radiographic film.
2. Identify and explain the purpose of the different systems of the automatic film processor.
3. Visually identify as well as explain the cause of various screen-film radiographic film artifacts.
4. Identify the various components of the image intensifier and describe the relationship and purpose of each.
5. Discuss the history of radiation oncology.
6. Explain the theory, basic physics, and clinical applications of cancers treated by radiation therapy.
7. Compare/contrast ultrasound to conventional radiography.
8. Explain using scientific terminology, how ultrasound produces an image.
9. Define and relate the historical development of MRI.
10. List the potential hazards associated with MRI imaging.
11. Compare/contrast CT, MRI, and conventional radiography.
12. Explain the patient preparation and use of contrast agent for different exams.
13. Explain the concept of CT and MRI in relationship to imaging.
14. List and describe exams performed in nuclear medicine.

15. Discuss procedures and equipment used in mammography and fluoroscopy.
16. Explain the purpose for procedures involving the Heart Cath Lab.
17. Define special procedures and list at least four (4) identified under that category.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Students will think critically to reach viable solutions to a problem and to justify those solutions.

Communication Skills

Students will compose coherent documents appropriate to the intended audience.

Technological Skills

Students will use technology to access information.

Ethics

Students will apply ethical concepts and rules to determine viable alternatives in any given situation.

III. Major Course Topics

- A. Radiographic Film/Processing
- B. Ultrasound
- C. CT Scan
- D. MRI
- E. Radiation Therapy/Oncology
- F. Fluoroscopy
- G. Digital Radiography