COURSE OUTLINE

Course Number	Course Title	Credits
RAD217	**Advanced Imaging Modalities**	**3**
Hours: Lecture/Lab/Other **3**	**Co- or Pre-requisite** **Pre-requisites: RAD117, RAD207** **Co-requisite: RAD228**	**Implementation Semester & Year** **Fall 2025**

Catalog description:
Presents an overview of special radiographic procedures and advanced imaging and therapeutic technologies.

General Education Category:
Not GenEd

Course coordinator:
Sandra L. Kerr, 609-570-3337, kerrs@mccc.edu

Required texts & Other materials:

Title: Textbook of Radiographic Positioning and Related Anatomy
Author: K. Bontrager
Publisher: Elsevier Mosby
Edition: 10th

Title: Radiologic Science for Technologists
Author: Bushong
Publisher: Mosby
Edition: 12th

Course Student Learning Outcomes (SLO):

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

1. Describe sterile technique employed during special radiographic procedures. [Supports ILG #3]
2. Identify the contrast media used during specialized procedures, including indications and contraindications. [Supports ILG #3]
3. Explain the technical and positioning considerations in performing the specialized radiographic procedures. [Supports ILG #3]
4. Identify the various kinds of equipment used during specialized radiologic procedures. [Supports ILG #1,2, 3, 4, 10]
5. Describe the functions and principles of operation of advanced imaging systems. [Supports ILG #1,2, 3, 4,10]
6. Identify the anatomy demonstrated in radiographs and other images obtained during special radiographic procedures and advanced imaging modalities. [Supports ILG #1,2, 3

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 1. Written and Oral Communication in English. Students will communicate effectively in both speech and writing.
Institutional Learning Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
Institutional Learning Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
Institutional Learning Goal 10. Information Literacy: Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Units of study in detail – Unit Student Learning Outcomes:

Unit I **Specialized Radiographic Procedures: Sterile Asepsis, Arthrography, Myelography, ERCP, Hystersalpingography** [Supports Course SLO #1, 2, 3, 4, 6]

Learning Objectives

The student will be able to:

- Apply the appropriate medical asepsis and sterile technique.
- Explain the role of the radiographer in specialized radiographic procedures.
- Identify anatomical structures demonstrated in images.
- Describe the patient preparation for contrast studies.

Unit II **Advanced Imaging and Therapeutic Modalities: Mammography, Bone Densitometry, CT, MR, US, NM, Radiation Oncology** [Supports Course SLOs #5, 6]

Learning Objectives

The student will be able to:

- Locate major anatomical structures on CT, MR, and, ultrasound images in the transverse axial, coronal, sagittal, and orthogonal (oblique) cross-sectional imaging planes.
- Differentiate the equipment used in various imaging and therapeutic concentrations.
- Compare and contrast the various methods of image creation.
- Explain the basic indications and contraindications for various imaging and therapeutic modalities.
- Discuss the image appearance and principles of operation for equipment used in various imaging and therapeutic modalities.
- Identify the education and certification necessary for advanced imaging modalities.

Evaluation of student learning:

A grade of "C+" (77%) or higher must be achieved in the course to progress to RAD 224, RAD232 and RAD240. The following grading policy will be utilized:

Tests	40%
Mid-Term Examination	20%
Final Examination n	30%
Written Essay Report	10%