

**Common Course Outline**  
**RADT 241**  
**Imaging Procedures in Magnetic Resonance Imaging (MRI)**  
**4 Credits**

**The Community College of Baltimore County**

**Description**

**RADT 241 – 4 credits – Imaging Procedures in Magnetic Resonance Imaging (MRI)** covers scanning procedures in MRI. Topics will include pulse sequences, manipulating parameters for optimum image quality, and the proper selection of coils. Additional topics include common pathologies that are imaged in MRI, special imaging procedures, screening, and safety. This course is delivered both online and in a classroom setting with lectures and discussion.

**4 Credits**

**Prerequisite:** RADT 240 with a grade of C or higher

**Overall Course Objectives**

Upon completion of this course students will be able to:

1. describe common pulse sequences used in evaluation of the different areas of the body;
2. discuss basic patient positioning and coil selection for various body parts;
3. determine the appropriate use of contrast media in evaluation of pathology;
4. identify and explain changes in anatomical sizes and shapes of structures, that would indicate pathology;
5. describe techniques in manipulating MRI parameters to optimize image quality;
6. explain environmental screening and safety concerns; and
7. discuss special procedures that are performed in MRI.

**Major Topics**

- I. Imaging Procedures
  - A. Patient Positioning
    1. Brain
    2. Spine
    3. Thorax
    4. Neck
    5. Abdomen
    6. Pelvis
    7. Musculoskeletal
  - B. Coil Selection and Position
  - C. Patient Orientation
  - D. Landmarks
  - E. Physiologic Gating and Triggering
  - F. Calibration Scans

- G. Contrast Indications
- II. Pathology
  - A. Common Pathological Conditions
    - 1. Head
    - 2. Neck
    - 3. Thorax
    - 4. Abdomen/Pelvis
    - 5. Musculoskeletal
  - B. Characteristic MRI Manifestations of the Pathology
    - 1. Pathology Resulting from Trauma
    - 2. Pediatric Pathology
- III. Screening and Safety
  - A. Screening
  - B. Equipment Safety
  - C. Environmental Safety
    - 1. Climate Control
    - 2. Shielding
    - 3. Magnetic Field Concerns
- IV. Special Procedures
  - A. Magnetic Resonance Angiography (MRA) / Magnetic Resonance Venography (MRV)
  - B. Functional Techniques
    - 1. Diffusion
    - 2. Perfusion
    - 3. Spectroscopy
    - 4. Functional MRI (fMRI)
  - C. Dynamic Imaging

### **Course Requirements**

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

- Minimum of 2 discussion board postings
- Minimum of 8 quizzes
- Minimum of 3 homework assignments
- A comprehensive final exam

Students are required to utilize appropriate academic resources.

### **Grading**

A minimum score of 75% is required to pass this course. The American Registry of Radiologic Technologists (ARRT) has established a minimum scaled passing score of 75. The MRI certificate program has developed standards of grading that are consistent with grading systems of other programs. Letter grades will be distributed according to the following standards:

92 - 100 A  
83 - 91 B  
75 - 82 C  
65 - 74 D  
below 65 F

**Other Course Information**

This course is a blended course, which includes classroom and online instruction.

This course is a required course in the MRI certificate program within the Radiography department. It is a 10 week course and is offered only in the winter semester.