

NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

RAD 115 - PRINCIPLES OF MAGNETIC RESONANCE IMAGING (3CR.)

COURSE DESCRIPTION

Presents concepts of magnetic imaging, magnetic physics, fundamentals of magnetic resonance and application of these principles. Lecture 3 hours per week.

GENERAL COURSE PURPOSE

This course is a component of a career certificate that is designed as a multi-competency module to provide expertise in magnetic resonance imaging to registered or registry eligible technologists. The completion of the career certificate will prepare individuals for employment as an MRI technologist in hospitals and imaging centers. This course will fulfill the professional continuing education requirements required by the American Registry of Radiologic Technologists.

ENTRY LEVEL COMPETENCIES

This course is offered to students who have graduated from an approved radiologic technology program and are registered or registry eligible according to the standards provided by the American Registry of Radiologic Technologists.

COURSE OBJECTIVES

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

- A. describe the history of magnetic resonance imaging
- B. discuss the relationship of electricity and magnetism to MRI
- C. describe nuclear magnetism
- D. discuss NMR signals
- E. describe RF pulses/sequences
- F. discuss NMR spectroscopy
- G. describe MRI parameters
- H. discuss T1 and T2 relaxation time/measurement
- I. describe MRI hardware
- J. discuss purchasing decisions
- K. identify site selection characteristics
- L. discuss digital imaging characteristics
- M. discuss spatial encoding
- N. discuss magnetic resonance images
- O. describe use of contrast agents
- P. describe flow
- Q. identify strategies for fast imaging
- R. discuss RF pulse timing
- S. discuss/identify artifacts

MAJOR TOPICS TO BE INCLUDED

- A. An overview of magnetic resonance imaging
- B. Electricity in magnetism
- C. Nuclear magnetism
- D. MRI signals and spectroscopy
- E. MRI parameters
- F. MRI hardware
- G. Purchasing decisions and site selection
- H. Digital imaging
- I. Spatial encoding
- J. Magnetic resonance imaging
- K. Contrast agents
- L. Fast imaging strategies
- M. Artifacts