

## Master Syllabus

### RAT 2643 - Principles of Magnetic Resonance Imaging

**Division:** Health Sciences

**Department:** Radiologic Technology

**Credit Hour Total:** 2.0

**Lecture Hrs:** 2.0

**Other Prerequisite(s):** Approval of Department

**Date Revised:** February 2014

---

#### Course Description:

Basic physics concepts involving the generation and construction of human planar images using magnetic resonance imaging technology.

#### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

#### Course Outcomes:

##### Magnetic resonance imaging equipment components

Describe basic components comprising a magnetic resonance imaging scanner.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 71% or higher achieved

##### Magnetism, atomic structure, and radio frequency

Describe major principles of magnetism, atomic structure and radio frequency.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 71 % or higher achieved

##### Acquiring sectional images

Describe how principles of magnetism and atomic structure are used in sectional image acquisition.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 71% or higher achieved

##### Magnetic resonance parameters

Identify and describe the use of magnetic resonance parameters in sectional image acquisition.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 71% or higher achieved

#### Outline:

Electricity and magnetism  
Nuclear magnetic signals  
MRI parameters  
Pulse sequencing in image acquisition  
Signal to noise ratio  
Hardware