



Basic Principles of MRI Imaging Systems - COURSE OVERVIEW

Course: *Basic Principles of MRI* is designed for entry level MRI service engineers. The course covers Basic MRI principles, Magnet Theory, Image Reconstruction, Image Quality and System Block Diagrams. The course will be conducted in a classroom environment and on a fully functional MRI system.

Qualifications for Admission: Students should have prior service experience. They should have a minimum of a two- year degree in electronics or equivalent experience. Students must have basic computer skills and a laptop computer.

Course Overview:

Features: Basic MRI Theory, MRI History, Image Acquisition, MRI System Diagrams, MRI Image Quality Assurance, MRI Systems overview.

MRI principles:

- MRI Safety
- Physics of MRI
- Magnet Theory
- Radio Frequency Theory
- Gradient Theory
- MRI Coil Theory
- Component Identification
- Patient Handling
- General System Overview

System hardware – General MRI block diagrams and basic functions:

- Power Distribution, Magnet System, Patient Table, Data Acquisition, Image Reconstruction and Console Computer block diagrams

Lab Exercises

- Basic MRI scanning, Hardware Identification – Consoles – System Cabinet – RF Cabinet – Gradient Cabinet – Patient Table – Magnet Components – Refrigeration Systems – General Image Acquisition

Summary: Upon Completion of the 5 day course, the engineer should be able to understand MRI Theory and MRI Basic Subsystems and their impact on Image Quality and Image Artifacts.

Course outline may change to meet student's needs