

# BONE DENSITOMETRY:

## GE LUNAR PRODIGY & HOLOGIC 4500C, DELPHI & QDR

### Introduction

Bone Densitometry is becoming an increasingly utilized imaging modality due to treatment requirements of osteoporosis and osteoarthritis. The trained service professional will be taught the skills necessary for mechanical and electronic maintenance of each Bone Densitometry unit. Each sub-system of the mechanical unit, x-ray production, and detector is thoroughly analyzed.

### Prerequisites

To attend this course, the service professional must possess fundamental knowledge and understanding of the principles of X-ray and basic electronics.

### Objectives

- Describe the basic components of peripheral Bone Densitometry units.
- Demonstrate an understanding of the installation procedures associated with each unit.
- Understand the phantoms and test equipment required to service each unit.
- Perform the necessary performance monitoring and quality assurance procedures utilizing each unit.
- Perform all system calibrations and adjustments to maintain the highest quality reports/results in monitoring patient Bone Mineral Density.
- Evaluate circuit functions to facilitate troubleshooting.

### Course Outline

#### **GE Lunar Prodigy-week 1**

##### **DAY 1**

- Bone densitometry theory overview
- DEXA – dual energy x-ray absorption
- Lunar prodigy version history/distinctions
- GE operational & service documentation
- Bone densitometry terminology
- GE lunar system specifications
- Bone densitometry scanning technologies
  - Fan beam
  - Narrow fan beam
  - Pencil beam

##### **DAY 2**

- GE lunar detector technologies
- Required tools & test equipment
- System operations
- Managing patient database/records
- Component Identification
  - Replace detector
  - Replace collimator
  - Replace x-ray tube

##### **DAY 3**

- System installation
  - Lunar installation calibration procedures
- System/board overview
- Service software
- Service procedures

##### **DAY 4**

- Quality assurance procedures
- System calibration
- System diagnostics

##### **DAY 5**

- Preventive maintenance
- Troubleshooting
  - Test points and service LED's
- System software reload

#### **Hologic DELPHI/QDR-week 2**

##### **DAY 6**

- Hologic version history/distinctions
- DELPHI/QDR system overview
- Hologic operational & service documentation
- DELPHI/QDR system specifications
- Hologic scanning technology
- Hologic detector technology

##### **DAY 7**

- Required tools & test equipment
- System installation
- System operations
- System software

##### **DAY 8**

- Quality control procedures
- Managing patient database/records
- Patient examination
- Reports
- Archive & restore

##### **DAY 9**

- Backup & recovery
- Configure the system
- Utilities
- System service
- Calibration

##### **DAY 10**

- Preventive maintenance
- Test points and system LED's
- Troubleshooting software
- Software reload