

# Walter L. Robinson & Associates Mammography Physics

## Training Program Syllabus

Mammography Physics Training Program provided to:

Jay Yoder

From: Mar. '92 to present.

Total hours: 60

Instructor: Walter L. Robinson, M.S., D.A.B.M.P. (1992) Diagnostic Imaging

### SYLLABUS

#### I. Didactic

##### A. A.C.R. Recommended Physics Quality Control Tests

1. Mammography Unit Assembly Evaluation
2. Collimation Assessment
3. Focal Spot Size Assessment
4. kVp Accuracy and Reproducibility
5. Half Value Layer Measurement
6. Automatic Exposure Control Performance Evaluation
7. Uniformity of Screen Speed
8. Breast Entrance Exposure and Average Glandular Dose
9. Phantom Image Quality Evaluation
10. Artifact Evaluation

##### B. Additional Performance Evaluation Checks

1. Output Reproducibility
2. mA & mAs Station Linearity
3. Viewbox Performance Evaluations
4. Film/Screen Contact Checks
5. Compression Paddle Checks
6. Radiation Safety Survey of Mammography Equipment/Rooms
7. Timer Accuracy and Linearity
8. Processor Quality Assurance Checks, such as: Temperature of Developer, Darkroom Integrity, Processor Artifacts, Quality Control Charts, Extended Processing

##### C. Technologist Communications

1. Technique Chart Development, Completeness
2. Darkroom cleanliness
3. Screen cleanliness
4. Repeat Analyses
5. Analysis of Fixer Retention Checks
6. Patient Positioning Techniques
7. Technologist Training & Review Programs for Continuing Ed.
8. Quality Control Chart Review
9. Magnification Mammography

##### D. Mammographic Equipment Acceptance Testing And Test Protocols

##### E. Regulations Pertaining to Mammography

1. A.C.R.
2. Medicare (H.C.F.A.), Department of Health
3. Bureau of Radiation Protection

##### F. Radiologist (Physician Consultant) Communications

1. Concept of "Team Approach"
2. Masking of Films
3. Viewbox Problems
4. Screening Mammography Responsibilities
5. Artifact Recognition in Clinical Films
6. Specification Writing Parameters

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### SYLLABUS (Continued)

#### II. Practicum

##### A. Equipment Understanding

1. Experience was obtained O.J.T. with various manufacturers with single phase, three phase, and high frequency single phase equipment. Nuances were noted in a notebook.
2. A literature file on mammography was established

##### B. O.J.T. Acceptance Testing and Annual Performance Evaluations

1. Were performed under the direct observation of the instructor
2. Corrections were noted and improvements made

##### C. Additional Reading Assignments in Literature and Textbooks

1. N.C.R.P. 85, 99 were read
2. Screen Film Mammography, Barnes & Frey, Med. Phys. Pub. Co. 1991
3. A.C.R. Physicists, Technologists, and Radiologists Manuals
4. 42 CFR 494 Regulations with Interpretive Guidelines
5. Title 25 Chapter 221 Regulations or MD/DEL Equivalents
6. Manufacturer's Requirements: 21 CFR 1020.30

#### III. Attendance of A.C.R.-Sponsored Physics of Mammography Seminars (> 15 hrs.)

This associate to attend: Washington, D.C. July '93

#### IV. Method of Evaluation

1. Oral Tests of Understanding of the Above
2. Observation in-the-field at client sights

This Associate's Overall Grade:

[ A ]

#### V. Accuracy Assurance of Equipment

1. Output equipment is sent to AAPM Regional Calibration Lab/2 yrs.
2. Other equipment are sent as needed (outside specifications)
3. Semiannual cross-checks with other recently-calibrated Company equipment

#### VI. Miscellaneous

1. The physics of X-ray production and X-ray tubes
2. Diagnostic X-ray System Components including but not limited to: grids, generators, Factors Effecting the Radiograph's Quality

Training Received By: \_\_\_\_\_

Instructor: \_\_\_\_\_

Date: 12-10-92