A POLYTECHNIC INSTITUTION

Course Outline

School of Health Sciences
Program: Medical Imaging
Option: Medical Radiography

**MRAD 1106**
**Radiographic Procedures 1**

**Start Date:** January, 2004 **End Date:** April, 2004

**Total Hours:** 150 **Total Weeks:** 15 **Term/Level:** 1 **Course Credits:** 10
**Hours/Week:** 10 **Lecture:** 4 **Lab:** 6 **Shop:** **Seminar:** **Other:**

**Prerequisites**

| Course No. | Course Name |
|---|---|

**MRAD 1106 is a Prerequisite for:**

| Course No. | Course Name |
|---|---|
| MRAD 1108 | Clinical Education 1 |
| MRAD 2206 | Radiographic Procedures 2 |

## ■ Course Description (required)

This course introduces the subject of radiography including the principles and terminology of imaging procedures. Emphasis will be placed on patient preparation and care as well as positioning and techniques for examinations of upper and lower extremities, pelvis, chest and abdomen. The course also covers all factors affecting radiographic technique, quality, and develops the ability to adjust technical factors to produce optimum quality images. Skills to evaluate the diagnostic and technical acceptability of the radiographs for each of the respective areas will be developed. Labs will reinforce the theoretical components of the course to prepare the learner for clinical practice.

## ■ Detailed Course Description (optional)

The goals of this course are to:

- initiate students to the discipline and practice of radiography.
- recognize and demonstrate radiographic and patient care procedures necessary to carry out required positioning of upper and lower extremities, pelvis, chest and abdomen.
- apply basic radiographic positioning principles and medical terminology.
- develop skills necessary to competently critique radiographs of anatomical positions covered.
- competently apply the technical and physical principles affecting the radiographic image.
- develop skills to competently discern diagnostic film quality.
- develop skills to adjust technical factors for optimum quality radiographs.

## ■ Evaluation

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|---|---|
| Weekly quizzes | 5% |
| Midterm Exams | |
| • Lecture (2 @ 10% ea.) | 20% |
| • Film Critique (2 @ 10% ea.) | 20% |
| Video Project | 5% |
| Laboratory (Positioning) | 5% |
| Final Exam | |
| • Film Critique | 20% |
| Lecture | 25% |
| TOTAL | 100% |

Comments: All laboratory exercises and video projects must be satisfactorily completed for a course mark to be received. As per BCIT Policy, late assignments will not be accepted for marking.

60% is the required pass mark in this course.

## ■ Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

- use radiographic terminology effectively.
  - ▸ interpret patient requisitions.
  - ▸ describe the various body positions for radiographic positioning.
- prepare for each patient examination.
- provide a safe patient environment.
- demonstrate effective communications with patients and peers.
- discuss and demonstrate organizational skills.
- accurately complete patient documentation and related dismissal tasks.
- describe and practice principles of beam geometry.
- distinguish between density and contrast.
- explain and demonstrate competent positioning of the patient for each of the following areas
  - ▸ upper extremity
  - ▸ lower extremity
  - ▸ pelvis
  - ▸ chest
  - ▸ abdomen
- apply basic radiographic principles to practice positioning of the various projections.
- describe and locate the anatomical landmarks and how they relate to the specific positions.
- distinguish differences in patient body habitus and how it relates to specific positioning requirements.
- consider adaptations to routine positioning to accommodate patient limitations.
- describe adaptation considerations for pediatric and geriatric patients.
- explain the basic technical requirements of radiographic examinations.
- demonstrate effective use and treatment of lab equipment.
- select specific KV ranges as they relate to various anatomical areas.
- calculate radiographic technique factors using the DuPont Bit system.

## ■ Course Learning Outcomes/Competencies (cont'd)

- evaluate radiographic images for technical quality and diagnostic acceptability using the ten points of critique.
  - identify part and Projection of each image.
  - analyze relationship between patient position and resultant image.
  - assess images for specific anatomical structures required and demonstrated.
  - assess images for density & contrast.
  - assess images for detail.
  - assess thee use of identification, side and additional markers.
  - assess images for effective use of radiation protection practices.
  - assess images for processing artifacts.
  - justify inclusion of any foreign bodies in images.
  - outline appropriate image receptor size for each projection.
- outline the influence of varying patient types and technical factors in the evaluation of the radiographic image.
- formulate solutions for correction of identified errors in radiographic images.
- proceed with implementation of solutions to improve image quality.
- demonstrate effective management of a patient examination scenario on video.

## ■ Verification

I verify that the content of this course outline is current.

| | |
|---|---|
| Authoring Instructor | Date: Dec 3, 2003 |

I verify that this course outline has been reviewed.

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| Program Head/Chief Instructor | Date: Dec 4, 2003 |

I verify that this course outline complies with BCIT policy.

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|---|---|
| Dean/Associate Dean | Date |

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

## ■ Instructor(s)

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## ■ Learning Resources

**Required:**

- Ballinger & Frank, *Merrill's Atlas of Radiographic Positions and Radiologic Procedure, Volumes 1, 2 & 3, 10th Edition, 2003*
- McQuillen – Martensen (1996) *Radiographic Critique*
- MRAD 1106 Student Lecture/ Laboratory Manual – Radiographic Procedures 1
- MRAD 1106 Positioning Book - Pocket Inserts

**Recommended:**

- Bushong, S., *Radiologic Science for Technologists, 6th Edition*
- Carlton & Adler, *Principles of Radiographic Imaging – An Art & a Science, 3rd Edition*
- Cullinan, A.M., *Producing Quality Radiographs, 2nd Edition*
- Torres, L., *Basic Medical Techniques and Patient Care for Radiologic Technologists, 6th Edition*
- Medical Dictionary

## ■ Information for Students

(*Information below can be adapted and supplemented as necessary.*)

**Assignments:** Late assignments, lab reports or projects will **not** be accepted for marking. Assignments must be done on an individual basis unless otherwise specified by the instructor.

**Makeup Tests, Exams or Quizzes:** There will be **no** makeup tests, exams or quizzes. If you miss a test, exam or quiz, you will receive zero marks. Exceptions may be made for **documented** medical reasons or extenuating circumstances. In such a case, it is the responsibility of the student to inform the instructor **immediately**.

**Ethics:** BCIT assumes that all students attending the Institute will follow a high standard of ethics. Incidents of cheating or plagiarism may, therefore, result in a grade of zero for the assignment, quiz, test, exam, or project for all parties involved and/or expulsion from the course.

**Attendance:** The current BCIT policy on attendance will be enforced. Attendance will be taken at the beginning of each session. Students not present at that time will be recorded as absent.

**Illness:** A doctor's note is required for any illness causing you to miss assignments, quizzes, tests, projects, or exam. At the discretion of the instructor, you may complete the work missed or have the work prorated.

**Attempts:** Students must successfully complete a course within a maximum of three attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from the appropriate program.

**Course Outline Changes:** The material or schedule specified in this course outline may be changed by the instructor. If changes are required, they will be announced in class.

## ■ Assignment Details

To be reviewed in class.