BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

School of Health Sciences
Program: Medical Radiography
Option:

Course Outline **Part A**

MRAD 2206
Radiographic Procedures 2

Hours/Week:	10.45	**Total Hours:**	115	**Term/Level:**	2
Lecture:		**Total Weeks:**	11	**Credits:**	7.5
Lab:					
Other:					

Prerequisites

Course No.	Course Name
MRAD 1106	Radiographic Procedures

MRAD 2206 is a Prerequisite for:

Course No.	Course Name
MRAD 3306	Radiographic Procedures

Course Goals

To provide students with the skills required to:

1. position patients for the views/projections being studied.
2. understand the differences between various radiographic contrast media and their possible reactions.
3. understand radiographic considerations for the geriatric, pediatric and trauma patient.
4. understand various tomographic applications.
5. evaluate the diagnostic and technical acceptability of radiographs of areas being studied.
6. formulate technique charts and recognize variables of techniques for various exams and the variations of the normal patient.

Course Description

Positioning for radiographic procedures related to the urinary, digestive and biliary systems as well as, thoracic cage, hip and shoulder girdle radiography will be covered. Skills to evaluate the diagnostic and technical acceptability of the radiographs for the respective areas will also be examined. Methods for formulating technique charts for various exams and for the variations of the normal patient will be developed. Trauma, geriatric and pediatric considerations, contrast media and tomography for the various procedures will be discussed. Labs will reinforce theoretical components of the course.

Evaluation

Final Examination	40%	
Midterm	30%	All labs and projects must be satisfactorily completed before a
Quizzes	15%	course mark will be given.
Assignment	10%	
Laboratory	5%	
TOTAL	100%	(60% is required for a pass.)

Course Outcomes and Sub-Outcomes

Upon successful completion of this course, the student will be able to:

1. Define, describe and demonstrate beam directions, centering points and patient positioning relating to the radiography of the:

    - urinary system
    - GI system
    - biliary system
    - hip and acetabulum
    - shoulder girdle
    - thoracic cage
    - scoliosis
    - leg lengths

2. Describe patient preparation, required projections and contrast media relating to radiographic examinations of the urinary, digestive and biliary systems.

3. Describe contrast reactions of various contrast media and the pertinent treatment.

4. Describe pediatric and geriatric considerations and immobilization for various radiographic procedures.

5. Describe tomographic considerations for various anatomical structures.

6. Describe and role play trauma scenarios.

7. Demonstrate radiographic judgement, organizational and communication skills and radiographic competence while positioning a patient.

8. Evaluate radiographs for the studied areas for diagnostic acceptability based on:

    a. inclusion of all required structures
    b. demonstration of correct positioning
    c. appropriate level of density demonstrated

Course Outcomes and Sub-Outcomes (cont'd.)

9. Assess main contributing factors to the overall radiographic image quality based on the:

    a. type of patient involved (body habitus, pathology, limitation of movement)
    b. appropriate technique factors required
    c. acceptable processing methods used

10. Propose possible solutions to poor radiographic quality.

11. Develop radiographic technique charts using the DuPont Bit System.

12. Outline technique chart adjustments to *be made with respect to*:

    a. patient body habitus
    b. patient pathology
    c. patient age
    d. specific equipment used (generators, film screen, grids, etc.)

Course Record

Developed by: Shirley Hunkvik, RT, MEd — Date: _____
Instructor Name and Department (signature)

Revised by: Dori Kaplun, ACR, MEd — Date: July, 1997
Instructor Name and Department (signature)

Approved by: Shirley Hundvik, RT, MEd — Start Date: September, 1998
Associate Dean / Program Head (signature)

Effective Date

September, 1998

Instructor(s)

Dori Kaplun, ACR, MEd | Office No.: SW3 4084 | Office Hrs.: As posted | Phone: 432-8743

Text(s) and Equipment

Required:

1. Radiographic Procedure 2 notes and lab manual.
2. "Merrill's Atlas of Radiographic Positions and Radiologic Procedures" Phillip W. Ballinger — 8th Edition. Volumes 1 and 2.
3. Curriculum Guide for Radiography Programs — CAMRT.

Recommended:

1. "Skeletal Anatomy" — Bryon.
2. "Joy of Sectioning" — Dowdell.
3. "The Contrast Media Manual" — Katzberg.
4. "Textbook of Radiographic Positioning and Related Anatomy" — Bontrager.
5. "Trauma and Mobile Radiography" — Drafke.

Radiographic evaluation quizzes

Room 4060

There will be a Rad Eval quiz each week in the film critique labs (Room 4060). In addition to ensuring comprehension of material, the objective of these quizzes are to encourage peer coaching and to promote confidence in your abilities. These are desirable skills in the workplace.

Persons participating in the Rad Eval quiz will be randomly selected each week. **The topic will be from the area studied the previous week.** Persons not selected for the weekly quiz may be asked to prepare an oral presentation.

In term 2A, the quizzes will be done with partners. The procedure will be as follows:

- During the lab, you will be given 5 minutes to critique a radiograph using the 10 point radiographic evaluation technique and form.
- When you have finished critiquing your radiograph, a partner will be assigned to review the critique.
- Discuss the critique with your partner. You may choose to change the critique after the discussion, prior to handing in the Rad Eval form.
- The final decision on what is presented on the radiographic evaluation form rests with the originating partner.

In term 2B, quizzes will be done on an individual basis.

Creating a technique chart

Each group will create a technique chart for the human body based on a pail of water. The procedure will be as follows:

- using a plastic pail filled with water to a specific level of 20 cm (approximately the same measurement as an average abdomen), produce a radiograph that has a background density of 1.0.
- based on this technique, produce an abdomen radiograph in the supine position.
- based on the Dupont Bit system and the AP abdomen radiograph, create a technique chart for the human body for the areas of:
  - vertebra
  - shoulder girdle
  - thoracic cage
  - chest
  - pelvis/hip
  - abdomen
  - plus any other additional areas except skull and extremities.

Each group will create a technique chart for extremities based on an initial radiograph taken of a wrist and ankle.

Each group will compare and analyze the difference of extremity techniques between the created techniques and actual hospital techniques.

Applied lab

The lab will be done with an assigned partner. Partners and room assignments will be randomly selected on a weekly basis.

Assume that you are relieving another technologist for coffee. He/she has just developed the last film for a radiographic series on the patient on the table.

The following set-up will be used:

- machine/equipment will be on
- view/projection will be indicated on the radiographic evaluation form
- phantom will be on the table in the position that it was when the radiograph was taken
- technique that was used for the radiograph will be set on the control panel
- exposed cassette will be in position as it was exposed

You will evaluate the radiograph with your partner using the 10 point radiographic system.

Repeat the radiograph if not all criteria are met. Clinical notebooks may be used. **Only one repeat may be made.** While one person is developing the radiograph, the other person should shut the room down. Complete the 10 point radiographic evaluation for your repeat radiograph.

Students are responsible for ensuring rooms are left neat and tidy.

Radiographs and corresponding radeval sheets are to be handed in at the end of the lab.

Radiographic Procedures 2
1998 Lecture Schedule

A/C Dates (week of)	Topic	B/D Dates (week of)
September 7		September 7
M	Labour Day	M
T	Course Outline, Introduction	T
T	Hip	T
W	Hip	W
W	Hip rad eval & technique	W
Th	Shoulder	Th
September 14		September 14
M	Shoulder	M
T	Scapula	T
T	Shoulder rad eval & technique	T
W	Shinerama	W
W	Shinerama	W
Th	Technique charts	Th
September 21		September 21
M	Urinary intro	M
T	Urinary	T
T	Urinary	T
W	Urinary tomography	W
W	Retrograde, voiding cysto's	W
Th	Urinary rad eval & technique	Th
September 28		September 28
M	Contrast Rx	M
T	GI intro	T
T	Colon	T
W	Colon	W
W	Colon rad eval & technique	W
Th	Guest lecturer	Th
October 5		October 5
M	Guest lecturer	M
M	midterm Set B during radeval lab time	M
T	midterm Set D during regular lecture time	T
T	midterm Set A during regular lecture time	T
W	Esophagus, Stomach	W
W	SBFT	W
Th	Guest lecturer	Th
F	Midterm Set C during rad eval lab time	F

A/C Dates (week of)	Topic	B/D Dates (week of)
October 12		October 19
M	Thanksgiving/tutorial	M
M	Thanksgiving/tutorial	M
T	Exam review	T
W	Chest	W
Th	Ribs	Th
F	Chest & Ribs rad eval & technique	F
Applied Lab	Ribs, Hip	Applied lab
October 26		November 9
M	Clavicle & AC jts	M
M	Clavicle/AC jts. rad eval & technique	M
T	Sternum & SC jts	T
W	Sternum/SC jts rad eval & technique	W
Th	Pharynx, larynx & trachea, Leg lengths	Th
F	Technique chart tutorial	F
Applied Lab	Sternum, SC jts, Clavicle	Applied Lab
November 2		November 16
M	Sacrum & Coccyx	M
M	Acetabulum & ilium	M
T	Sacrum & Coccyx rad eval & technique	T
W	Remembrance Day/Tutorial	W
Th	Tomography	Th
F	Tomography	F
Applied Lab	Spine	Applied lab
November 23		November 30
M	Biliary intro & oral chole	M
M	OR chole	M
T	T-Tube	T
W	ERCP, PTC	W
Th	Trauma roleplay	Th
F	review	F
Applied Lab	Scapula, Shoulder	Applied Lab

Assignment due dates:

Technique Chart December 1, 1998

Late assignments will lose 1 mark per day.