



School of Health & Human Services
Medical Radiography Technology

Course Name: Principles of Radiographic Imaging 2

Course Number: MRAD 159

COURSE OUTLINE

The Approved Course Description is available on the web:

<http://camosun.ca/learn/calendar/current/web/mrad.html#MRAD159>

Please note:

- *This outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*
- *This course is only open to students in the Medical Radiography program.*

Introduction:

In this advanced-beginner course, students build on their knowledge of how to operate radiographic and accessory imaging equipment. Students explore fluoroscopy, mammography, mobile radiography, as well as intra-operative equipment. Students focus on the digital imaging process and digital archiving principles as they apply to a variety of radiographic imaging modalities. In the lab component of this course, students execute quality control tests and apply tolerance standards as outlined in federal safety codes to assess equipment performance.

Students must achieve a minimum of a C+ (65%) to use this course as a prerequisite. Refer to the Camosun Calendar for detailed information about course prerequisites.

1. Instructor Information

| | | | | |
|-----|---------------|---|--------------------|--|
| (a) | Instructor: | Aref Aalam | | |
| (b) | Office Hours: | Tuesday and Thursday 1130-1230 | | |
| (c) | Location: | WT 212D | | |
| (d) | Phone: | 250-370-3182 | Alternative Phone: | |
| (e) | Email: | ArefrezaA@camosun.ca | | |
| (f) | Website: | http://online.camosun.ca/ | | |

2. Intended Learning Outcomes/Competencies

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

- a) Describe the evolution, function, and importance of x-ray tubes used in a variety of medical imaging procedures.
- b) Explain how diagnostic images are produced by describing the components and function of computed radiography, digital radiography, fluoroscopy, mobile radiography, mammography, and C-arms.
- c) Describe how digital imaging principles and techniques are used in the performance of medical radiography.
- d) Describe the use of digital archiving principles in the management of imaging data within a variety of workplace settings.
- e) Apply the principles of quality control and quality assurance to review and analyze radiographic images for accuracy and quality.

[CAMRT Medical Radiography Competency Profile](#)

[CAMRT Medical Radiography Competency Profile May 2018 certification exams](#)

3. Learning Resources

Required Textbooks:

Bushong, S.C. (2017). *Radiologic Science for Technologists: Physics, Biology, and Protection* (11th ed.). Elsevier Health Sciences.

Fauber, T. (2017). *Radiographic Imaging & Exposure* (5th ed.). Elsevier Health Sciences.

Optional Textbooks:

Carter, C.E. & Veale, B.L. (2014) *Digital Radiography and PACS* (2nd ed.). Elsevier: Mosby.

Seeram, E. (2011). *Digital Radiography: An Introduction*. Delmar, Cengage Learning.- not available at bookstore 2017

Desire-to-Learn (D2L):

D2L – the Camosun College online learning portal contains the remainder of the learning materials for this course. Students are expected to familiarize themselves with the online learning environment and all the features it has to make this course experience enriching. Log on at <https://online.camosun.ca/> to access these materials.

Additional resources may include, but are not limited to: lecture notes, PowerPoint slides, Laboratory Manuals, and hyperlinks. You may prefer to download lectures notes ahead of time (when available) and then write your notes directly onto copies of the slides. YouTube and other media services will also be used throughout the course via public domains.

D2L materials **must not** be considered your sole source of information. They merely summarize the main points and provide direction for your learning experiences. You may need to write down additional information in each lecture. Additionally, not all details can be covered in a lecture, and you will be required to refer to textbook material that is not discussed specifically in class.

Other Materials:

Additional resources may include, but are not limited to: PDF's, lecture notes, PowerPoint slides, Textbook Companion Workbooks, Laboratory Manuals, and hyperlinks. You may prefer to download lectures notes ahead of time (when available) and then write your notes directly onto copies of the slides.

4. Student Assessment

| | |
|--|-------------|
| Attendance/Participation | 10% |
| Quizzes | 20% |
| Assignment #1:RFP Proposal | 25% |
| Assignment #2:QC Video Project | 30% |
| Seminar Leadership: Presentation, Critique, Discussion | 15% |
| TOTAL | 100% |

Students must achieve a minimum of 65% to use this course as a prerequisite.

Assessment Details

Attendance

You are expected to attend all classes and labs, and be on time. It is your responsibility to acquire all information given during a missed class, including notes, hand-outs, assignments, changed exam dates, etc. Missed exams or quizzes cannot be made up except in case of documented illness (doctor's note required).

In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with his/her instructor indicating the reason for the absence. Prolonged illness of three or more consecutive days must have a medical certificate sent to the department.

For other Assessment Details please refer to the D2L course home page.

- In emergency circumstances, a student may write a test or final examination before or after the scheduled time if the student would otherwise be unable to complete the program or course. Exceptions due to emergency circumstances, such as unavoidable employment commitments, health problems, or unavoidable family crises, require the approval of the instructor. Holidays or scheduled flights are not considered to be emergencies. The student may be required to provide verification of the emergency circumstance. Camosun Academic Policy retrievable from: <http://camosun.ca/learn/calendar/current/pdf/academic-policies.pdf>)

5. Course Content and Schedule:

Lecture Days/Times & Room Number:

WT 212 C

Monday 1230-0120

Wednesday 0330-0520

Lab Days/Times & Room Number:

WT 212A,B,C

X-Ray Labs – 2 hours each week based on designated set

Monday 0130-0520 (designated set)

Thursday 0430-0520 (all students)

The following schedule is tentative and subject to change if deemed necessary by the instructor.

| Week | Dates | Module | Lecture | Lab | Quizzes and Assignments |
|------|--|--------|---|---|--|
| 1 | May 7-11 | 1 | Introduction Film/Screen Based Radiography & X-ray Tube Innovations | Cleaning Imaging Plates and Cassettes | |
| 2 | May 14-18 | 2 | Digital Radiography: An Overview | RFP lab-go over requirements for project | |
| 3 | May 21-25 May 21-Victoria Day -no class | 3 | Digital Imaging Processing: Concepts | Erasure Lab | |
| 4 | May 28-June 1 | 4 | Mobile Imaging 1 st seminar | -identify resources for Final Product Kvp Accuracy | Quiz #1 before lab 2 |
| 5 | June 4-8 | 5 | Fluoroscopy 2 nd seminar | HVL | Quiz # 2 before lab 2 |
| 6 | June 11-15 | 6 | Computed Radiography: Physics and Technology 3 rd seminar | CR noise | Quiz #3 before lab 2 Assignment #1 Part A – RFP presentations due on Sunday 2359 |
| 7 | June 18-22 June 22 Graduation Day -no classes | | RFP Presentations | No lab | Assignment #1 Part B – RFP written response due Sunday 2359 |
| 8 | June 25-29 | 7 | Effective use of CR 4 th seminar | Spatial Resolution | Quiz #4 before lab 2 |
| 9 | July 2-July 6 July 2- in lieu of Canada Day -no class | 8 | QA/QC concepts 5 th seminar | mAs reproducibility | Quiz #5 before lab 2 |
| 10 | July 9-13 | 9 | Flat Panel Digital Radiography 6 th seminar | Free time to work on project | Quiz #6 before lab 2 |
| 11 | July 16-20 | 10 | Digital Fluoroscopy, Tomo, Digital Mammography, & QC 7 th seminar | SC 35 | Quiz #7 before lab 2 |
| 12 | July 23-27 | 11 | PACS 8 th seminar | PACS | Quiz #8 before lab 2 |
| 13 | July 30-August3 | 12 | QC for Digital Radiography | Free time to work on project | Assignment #2 QC video project due on Sunday 2359 |

| Week | Dates | Module | Lecture | Lab | Quizzes and Assignments |
|------|---|--|------------------------------|-----|-------------------------|
| 14 | August 6-10 BC day-Aug.6 no class Aug 7 -Capstone | | Project Presentations | | |
| 15 | August 13-17 | EXAM WEEK – NO FINAL EXAM FOR THIS COURSE | | | |

*Exam Period is scheduled by registrar - check CAMLINK.
Specifics will be updated in D2L when known.*

Do not book trips until the final exam schedule is posted by the registrar.

6. Grading System

The following two grading systems are used at Camosun College. This course will use:

- Standard Grading System (GPA)
- Competency Based Grading System

Standard Grading System (GPA)

| Percentage | Grade | Description | Grade Point Equivalency |
|------------|-------|---|-------------------------|
| 90-100 | A+ | | 9 |
| 85-89 | A | | 8 |
| 80-84 | A- | | 7 |
| 77-79 | B+ | | 6 |
| 73-76 | B | | 5 |
| 70-72 | B- | | 4 |
| 65-69 | C+ | Minimum level of achievement to use the course as a prerequisite. | 3 |
| 60-64 | C | | 2 |
| 50-59 | D | Minimum level of achievement for which credit is granted. | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

| Temporary Grade | Description |
|-----------------|---|
| I | <i>Incomplete</i> : A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or |
| IP | <i>In progress</i> : A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of |

| | |
|-----------|---|
| CW | <i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, |
|-----------|---|

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

CONDUCT POLICIES

It is the student's responsibility to become familiar with the content of these policies. The policies are available in each School Administration Office, Registration, and on the College web site in the Policy Section.

[Academic Policies and Procedures](#)
[Student Conduct Policy](#)

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Registrar's Office or the College web site at

<http://www.camosun.bc.ca>

MRT PROFESSIONAL CODE OF ETHICS

Camosun College Medical Radiography Technology students are expected to abide by the Canadian Association of Medical Radiation Technologist (CAMRT) Code of Ethics inasmuch as it applies to them in the learning and clinical environments. This information is available on the CAMRT website at:

[CAMRT Code of Ethics](#)

MRT Department Policies & Procedures

Camosun College Medical Radiography Technology students are responsible for knowing all of the MRT Department Policies and must abide by them, including dress codes & lab safety procedures.

<http://camosun.ca/learn/programs/mrt/handbook.pdf>

8. GENERAL INFORMATION

Students are expected to attend all classes and labs. If you are unable to attend the lecture it is your responsibility to acquire all information given during a missed class including notes, hand-outs, assignments, changed examination dates, etc.

The Medical Radiography Technology program is committed to promoting competence, professionalism and integrity in our students and developing their core skills to succeed throughout their academic programs and in their careers. The purpose of Academic Honesty Guidelines is to provide clear expectations of appropriate academic conduct and to establish processes for discipline in appropriate circumstances. It is the student's responsibility to become familiar with the content and the consequences of academic dishonesty. Before you begin your assignments, review the Academic Policies on the Camosun College website:

<http://camosun.ca/learn/becoming/policies.html>