CAMOSUN COLLEGE	***School of Health & Human Services*** Medical Radiography Technology **Course Name:** **Principles of Radiographic Imaging 1** **Course Number:** **MRAD 119** **Term:** **Fall 2017**

COURSE OUTLINE

The Approved Course Description is available on the web: http://camosun.ca/learn/calendar/current/web/mrad.html#MRAD119

Please note:

- *This outline will* **not** *be kept indefinitely.*
- *This outline will only be electronically stored for five (5) years.*
- *It is strongly recommended students keep this outline for your records; especially to assist in transfer credit to post-secondary institutions*
- *This course is only open to students in the Medical Radiography program.*

1. Instructor Information

(a)	Instructor:	Brent Mekelburg
(b)	Office Hours:	By Appointment
(c)	Location:	MRT 212D
(d)	Phone:	250-370-3992
(e)	Email:	mekelburgb@camosun.ca
(f)	Website:	http://online.camosun.ca/

2. Intended Learning Outcomes/Competencies

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

1. Describe the equipment and components of a general x-ray room (including accessories), and explain how they interrelate to produce a diagnostic image.
2. Explain the influence of technical and non-technical factors on the resultant image.
3. Discuss problem solving for equipment malfunction and technical errors based on image artifacts.
4. List the major components of a CR system and summarize how a digital image is created and processed.
5. Compare and contrast the use of a characteristic curve for describing conventional versus digital radiography.
6. Explain the fundamental principles of radiation protection and current radiation protection standards as it applies to diagnostic radiology.

3. Required Materials

(a) Textbooks:

Fauber, T. (2013). ***Radiographic Imaging & Exposure*** (5th ed.). Elsevier Health Sciences.

Bushong, S.C. (2008). ***Radiologic Science for Technologists:*** *Physics, Biology, and Protection* (11th ed.). Elsevier Health Sciences.

(b) Other

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.

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.

4. Course Content and Schedule:

Lecture Days/Times & Room Number:

MRT 212C

Monday & Wednesday 0830-1020

Lab Days/Times & Room Number:

XRAY LABS: 1 hour each week based on designated set

Tuesday 0830-1220

Course Schedule

Week	Dates	Lecture/Module	Chapter	Lab	Quiz
1	Sept 5-8 **Labour Day**	**1. Introduction: History, Properties & Equipment**	**F:1**		
2	Sept 11-15	**2. The X-Ray Beam**	**F: 2 B: 6&7**	**X-ray room scavenger hunt**	
3	Sept 18-22	**3. Conventional Radiography & The Characteristic Curve (Film-screen Imaging)**	**B: 10+12 F: 5**	**Tube Warm-up & Equipment Orientation**	MQ1&2 PRQ3
4	Sept 25-29	**4. Image Formation and Radiographic Quality**	**F: 3**	**Sensitometry CR**	PRQ4
5	Oct 2-6	**5. Exposure Technique Factors**	**F: 6**	**Dose creep & Distortion**	MQ3&4 PRQ5
6	Oct 10-13 **Thanksgiving**			**No Lab**	
7	Oct 16-20	**6. Scatter control & Grid errors**	**F: 7**	**mAs & x-ray quanta/kVp & x-ray quality**	PRQ6
8	Oct 23-27	**7. Image Receptors & Image Acquisition (Digital Imaging)**	**F: 4**	**Grid Use**	PRQ7 MQ5,6 &7
9	Oct 30-Nov 3	**8. Exposure Technique Selection**	**F: 8 FWS 8**	**Inverse and Direct Square Law**	PRQ 8
10	Nov 6-10	**9. Image Evaluation**	**F: 9**	**Exposure Technique Chart**	PRQ 9
11	Nov 14-17 **Remembrance Day**	**10. Radiobiology**	**B:29**	**Image Evaluation & Error Correction**	MQ 8&9 PRQ 10
12	Nov 20-24	**10. Radiobiology** **Project Help Class**	**B:29&30**	**SNR & Image Noise**	
13	Nov 27-Dec 1	**11. Radiation Protection** **Project Help Class**	**B:35&36**	**Radiation Safety**	PRQ11
14	Dec 4-8	**Project Presentations**		**No Lab**	
	Dec 11-15	**FINAL EXAM PERIOD**			

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

5. Student Assessment

Attendance/Participation	10%
Reading Quizzes	10%
Module Quizzes	25%
Term Project	25%
Cumulative Final Exam	30%
TOTAL	**100%**

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

Attendance/Participation

It is expected that you show up on time and participate in both labs and classroom lectures. We learn from each other, and I highly encourage you to willingly contribute to our group learning environment. We highly value interaction, appreciative inquiry, and active engagement.

If you attend all of the lectures, you will get 5%. For every un-communicated or un-excused absence, you will lose a mark. If you communicate your absence and it is for a legitimate reason ahead of time, you will not lose a mark.

The participation mark is worth 5%. If you're wondering how this will be marked, here is a simple way to self-reflect and guide your level of participation: Ask yourself, when given the opportunity to answer questions in class, share my knowledge, insights or contribute positively in a relevant manner, I participated actively:

0-never

1-rarely, if ever (1/semester)

2-sometimes (1/month)

3-consistently (1/week)

4-always (1/class)

5-always, but also constructively in a manner that deepened the discussion and furthered the level of interaction of the class with the material in a beneficial manner.

Reading Quizzes

In order to gain the most from lectures, students should come to class prepared. This means having done the assigned reading beforehand. In order to assess your understanding of the material, there will be a short 5-10 question reading quiz at the beginning of class that covers the general concepts addressed in the readings.

Module Quizzes

In lieu of a midterm exam, there will be module quizzes to assess your level of knowledge as it relates to the theory of rad sciences. The purpose of these quizzes throughout the term is to keep you up to date on course content, help you identify areas of weakness, celebrate successful integration of knowledge, provide confidence, decrease anxiety, and expose you to the type of questions you can expect on the final exam.

Term Project

The term project provides an alternative platform for you to demonstrate your expert knowledge of a Radiographic Imaging Principle. It is an individual, term-long project in which you will build stepwise towards producing a 7minute multimedia video presentation based on subject matter covered in this course. We will gather during the last week of class to celebrate your work, watch the videos you have produced, and use them as a review tool to study for the final exam. Details will be discussed in class.

Final Exam

The final examination is cumulative and includes material from all modules covered in the course. This final examination will occur during the regularly scheduled final exam week.

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)

Missed quizzes or examinations cannot be made-up except in the case of documented illness (doctor's note).

6. Grading System

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

[X] Standard Grading System (GPA)

[ ] Competency Based Grading System

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

STUDENT 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 insomuch 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

Grading Systems

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	*Incomplete*: 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	*In progress*: 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 3rd. course attempt or at the point of*
CW	*Compulsory Withdrawal:* 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,

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