Confederation COLLEGE

Medical Radiation Technology
2025-2027 Program Handbook

Words of Advice from previous students…..

Have proper time management, do not procrastinate; seek help ASAP! If you don't understand a concept, ask someone or ask a professor. Study in groups. Read the lecture slides and make notes before the professor teaches it.

Study hard and seek out help where needed!

-do not fall behind
-do assignments early
-study in groups
-pay attention in class

I would tell a first semester MRT to study their material as soon as class is over to get a full understanding before learning another concept. I also definitely recommend the quizlet website for studying; it has helped me A LOT! Also, I would say focus on your studies and take some time off work, do not work more than 5-10hrs/week of another job. Additionally, studying with friends and coming early to class has helped me so much and I would definitely recommend that too. All in all, I wish all first semester MRT's good luck and I'm excited to be there to help anyone in need!

Get on top of the work early! The more you can get ahead the easier it will be to stay caught up.

Don't slack and think that this will be easy and that you don't have to do the work, especially to the students coming from University to College thinking it will be easier, because it's not.

Table of Contents

Note: Please be advised that every attempt has been made to keep information in this manual as up to date as possible, however information may have changed after printing. This manual will also be available electronically on Blackboard.

Medical Radiation Technology

Coordinator's Welcome

Welcome to the Confederation College Medical Radiation Technology Program!

Our Program Purpose is to prepare students for entry to practice in the Medical Radiation Technology profession by:

- ensuring all graduates achieve the competencies listed in the CAMRT Competency Profile and are ready to write the Jan 2028 certification exam.
- providing the student with the knowledge, skills and judgment to provide safe, competent and ethical practice in a variety of clinical environments.

YOU CAN SUCCEED!

We understand that many of you need to hold part-time jobs, but you must find balance in your life. For every hour in class, it is recommended to spend a **MINIMUM** of one hour in study/practice on your own. Think of school as a 40- hour work week to be successful in this program.

DO NOT PROCRASTINATE! As soon as you are given an assignment do it!

TAKE SCHOOL SERIOUSLY. There is a direct relationship between attending classes and success in the MRT Program.

MAKE SMART DECISIONS. OBEY THE ACADEMIC INTEGRITY. Students become guilty of plagiarism when they fail to give credit to their source through footnotes, references (see your student handbook) or copy from an AI chatbot. Offenses against academic honesty are serious and don't align with MRT professional ethics.

COMMUNICATE. Use your college email address to communicate with faculty and placements. It is important to notify the Registrar's office and the Coordinator of changes in your address and telephone numbers.

Coordinator Contact Information

Nancy Hodder
Office: Shuniah Room 283
Tel: (807) 475-6669
Email: nhodder@confederationcollege.ca

Full-Time Faculty

Melanie Edison
Office: Shuniah Room 283
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USE COLLEGE SERVICES (you've paid for these in your tuition!)
Take advantage of all the services offered by the college! The Guidebook is all-in-one outline of services and was designed to ease the transition from high school/workplace to college life. Download a copy of the Guidebook. SUCCI, The Student Union of Confederation College Inc. is a student-focused organization committed to advocacy, entertainment, well-being, employment, education and student-friendly services to enhance the overall college experience. Learn more of how they support you as a student or even how to apply for student jobs on their website, SUCCI.

MEDICAL RADIATION TECHNOLOGY

Six Semester Advanced Diploma – Full Time 2½ Year Program

REQUIREMENTS for Clinical Observation Days and Clinical Placement:
(see Appendix D for Clinical Requirements Checklist)

To submit to the COLLEGE HEALTH CENTRE:

- ☐ The Immunization and Communicable Disease Form (can be downloaded from the college website) and submitted to the Health Center → **need in Sem 3 prior to clinical placement**
- ☐ 2-Tier TB skin test results.
  → **first 2-tier TB test complete by Sem 1**
  → **one-step TB skin test complete by Sem 3**
- ☐ A chest x-ray report is required if you have had a positive result on TB testing
- ☐ Full Covid-19 vaccination (2 doses) → **complete by Sem 1**
- ☐ Serology is required. → **complete by Sem 3**

To submit to the MRT PROGRAM COORDINATOR:

- ☐ A copy of your Criminal Reference Check (CRC) including Vulnerable Sector Check (VRC) → **complete by Sem 3**
- ☐ Proof of Standard First Aid and CPR at the Health Care Provider (HCP) or Basic Life Support (BLS) level or Level C. → **complete by Sem 3**
- ☐ Proof of N95 Mask Fit test → **complete by Sem 3**

Students are responsible for notifying their Coordinator if they have a medical condition that places their health at risk in the clinical placement areas.

You cannot begin placement until the above are completed

- if there is a delay in completing, you will have to make up days
- if you do not complete, you cannot attend placement & cannot graduate

OVERVIEW of the 2.5 year MRT Program:

Theory Portion:

1st year – On campus. 2 semesters (Fall & Winter semester, 14 weeks each) beginning in September and ending in late April. Each semester consists of approximately 8 classes all of which are 3 hours in length per week.

2nd year – On campus for Fall semester (14 weeks) at the college consisting of approximately 8 classes that are each 3 hours in length per week. Students will practice IV insertions on each other in Sem 3. Only those that are eligible may be volunteers to get a venipuncture (Appendix F)

2nd/3rd year – Clinical placement. 3 semesters; Winter, Spring & Fall. One general elective, a research paper, exam review course and final comprehensive exam must be completed during the clinical semesters.

Clinical Placement Process:

Clinical placements are assigned based on student preferences where possible, and then chosen by academic standing at the time of admission. Students **may or may not** receive their first placement choice. Clinical placement decisions will be confirmed in Semester 3. Approximately half the class will have to move out of Thunder Bay. Students must be prepared to work day, evening, and weekend shifts during clinical placement.

All costs associated with placement (i.e. living accommodations, transportation, parking, scrubs etc) are the responsibility of the student.

Clinical Placement - begins in January at your clinical partner hospital and runs for 3 x 15 week semesters (semesters 4-6). There is no summer semester off. Each year spots must be confirmed at the clinical placement partners, so it can vary year to year how many students a hospital will take. Previous clinical locations include:

- Thunder Bay Regional Health Sciences Center (TBRHSC) (full-time)
- Windsor Regional Hospital (WRH) (full-time)
- Sault Area Hospital (SAH) in Sault Ste Marie (full-time)
- Lake of the Woods Hospital (LWDH) (full-time) + 4 week rotation to TBRHSC
- Joint placement between a District hospital (Sioux Lookout Meno Ya Win Health Centre, Dryden Regional Health Centre or Riverside Health Care in Fort Frances) and full time site.
    - 1 semester at District site + 2 semesters at a full time site

During clinical rotations, you will have all statutory holidays and college breaks off. Evaluations during clinical will be provided by your Clinical Lead and preceptors. You will receive a copy and review the **Clinical Manual** with the Coordinator prior to the start of your placement.

Confederation College reserves the right to make changes to the clinical placement of students when deemed necessary and at the discretion of the clinical partner. A student requesting a change of placement must submit a written request to the Program Coordinator for approval but normally the placement policy stands (rankings then academic standing at admission).

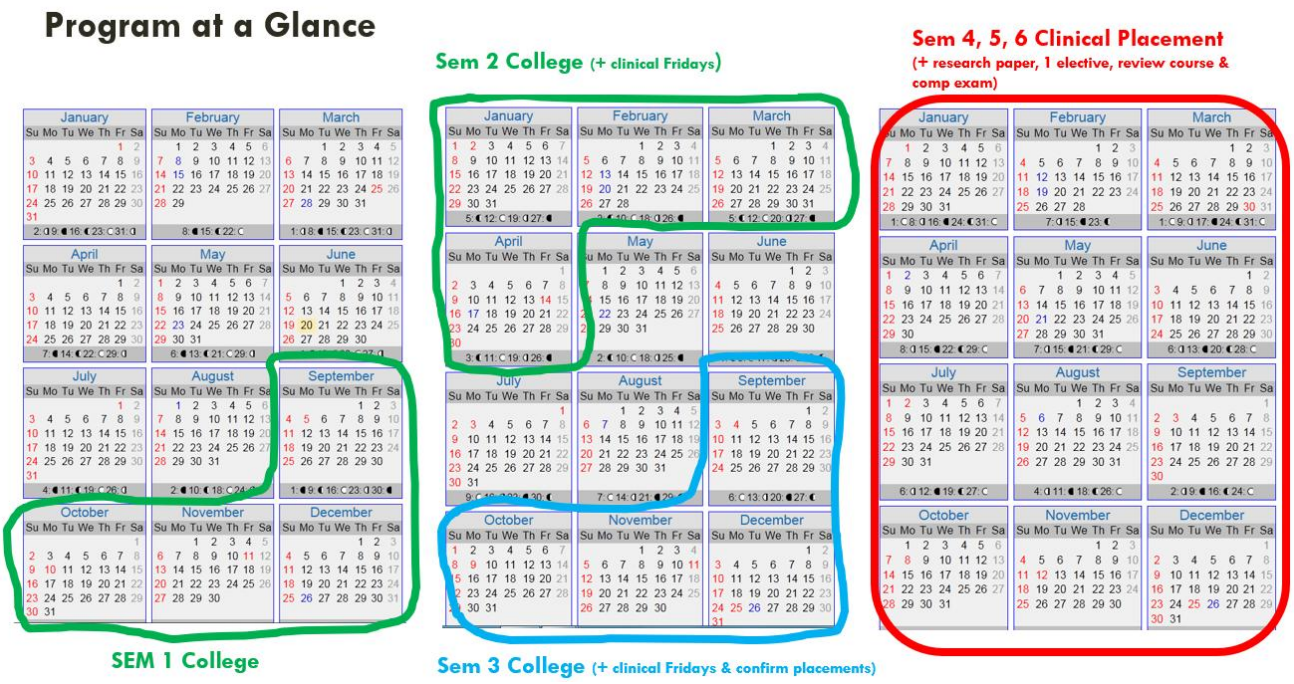
As a GRADUATE:

Accreditation Canada accredits all Canadian MRT programs. In order to practice in Canada you must graduate from an Accredited Program and pass a National exam set by the Canadian Association of Medical Radiation Technologists (CAMRT). The CAMRT certification exam is the entry-to-practice standard, to ensure safe and effective practice. The CAMRT develops and administers this exam on behalf of all provinces. The cost of the exam is the responsibility of the graduate. Once you have passed the CAMRT exam you must be a member of the College of Medical Radiation and Imaging Technologists of Ontario (CMRITO) to practice in Ontario.

The Confederation College MRT program curriculum is developed and designed to cover all of the competencies in the current CAMRT Competency Profile (Radiological Technology). For more information go to www.camrt.ca. Our goal is to prepare you for entry to professional practice as an MRT.

MRT PROGRAM DESIGN

FALL SEMESTER	WINTER SEMESTER	SPRING SUMMER
Year 1 14 weeks theory	**Year 1 14 weeks theory**	
Patient Management RA111	Professional Practice/IPE RA208	
General Radiography 1 RA113	General Radiography 2 RA211	
Radiographic Equip Operation 1 RA115	Radiographic Equip Operation 2 RA213	
Clinical Lab 1 RA117	Clinical Lab 2 RA217	Vacation
Sociology: Indigenous Context SY066	Radiographic Procedures RA219	
Anatomy + Physiology 1 AB113	Anatomy + Physiology 2 AB214	
Radiographic Anatomy + Pathology 1 RA119	Radiographic Anatomy + Pathology 2 RA209	
College Writing CS050	Radiation Safety RA215	
Year 2 14 weeks theory	**Year 2 15 weeks placement**	**Year 2 15 weeks placement**
Adaptive Imaging RA311	Clinical Rotation RA410	Clinical Rotation RA510
Radiographic Equip Operation 3 RA313	Research Study RA412	Practice Exam
Computed Tomography + IV lab RA319	General Elective online (may also be taken in spring/summer year1)	
Clinical lab 3 RA317		
C-S Anatomy +Pathology RA315		
Quality Management RA314		
Intro to Research Methods CS224		
Interpersonal C. Skills PY169		
Year 3 15 weeks placement		
Clinical Rotation RA610		
Comprehensive Exam RA608 Exam review RA618		



MRT COURSE CONTINUITY

COURSE	PRE-REQUISITE (needed to take course)	CO-REQUISITE (taken concurrently)
YEAR 1 SEM 1		
RA111 Patient Management	Offer to MRT program	RA113, RA117
RA113 General Radiography 1	Offer to MRT program	RA111, RA115, RA117, RA119
RA115 Radiographic Equip Op 1	Offer to MRT program	RA113, RA117
RA117 Clinical Lab 1	Offer to MRT program	RA111, RA113, RA115, RA119
RA119 Rad Anatomy & Pathology 1	Offer to MRT program	RA113, RA117
AB113 Anatomy & Physiology 1	n/a	n/a
YEAR 1 SEM 2		
RA208 Professional Practice	RA111, RA113, RA117	RA211
RA209 Rad Anatomy & Pathology 2	RA113, RA117, RA119	RA217, RA219
RA211 General Radiography 2	RA111, RA113, RA115, RA117, RA119	RA209, RA213, RA217
RA213 Radiographic Equip Op 2	RA113, RA115, RA117	RA211, RA215, RA217, RA219
RA215 Radiation Safety	RA113, RA115, RA117	RA209, RA213, RA217
RA217 Clinical Lab 2	RA111, RA113, RA115, RA117, RA119	RA208, RA209, RA211,RA213, RA215
RA219 Radiographic Procedures	RA111, RA113, RA115, RA117, RA119	RA209, RA213, RA215
AB214 Anatomy & Physiology 2	AB113	n/a
CS050 College Writing	n/a	n/a
YEAR 2 SEM 3		
RA311 Adaptive Imaging	RA111, RA208, RA209, RA11, RA213, RA215, RA217, RA219	RA313
RA313 Radiographic Equip Op 3	RA211, RA213, RA215, RA219	RA311, RA314, RA319
RA314 Quality Management	RA208, RA213, RA215	RA313
RA315 Cross-sectional Anatomy & Pathology	AB113, AB214, RA209, RA213, RA217	RA313, RA319
RA317 Clinical Lab 3	RA208, RA211, RA213, RA215, RA217, RA219	RA311, RA313
RA319 Computed Tomography	RA208, RA209, RA11, RA213, RA215, RA217, RA219	RA313, RA315
CS224 Research Methods	CS050	n/a
YEAR 2 SEM 4		
RA410 Clinical Rotation 1	RA311, RA313, RA314, RA315, RA317, RA319	n/a
RA412 Research Study	RA311, RA313, RA314, RA315, RA317, RA319, CS224	n/a
YEAR 2/3 SEM 5 + SEM 6		
RA510 Clinical Rotation 2	RA410	n/a
RA610 Clinical Rotation 3	RA510	n/a
RA608 Comprehensive Exam	RA510	RA618
RA618 Exam Review	RA510	RA608

PROGRAM POLICIES

Attendance:

Students are responsible for obtaining any information missed during class. If you are unable to attend a class or lab, you must notify your professor in advance. Failure to do so will result in a grade of zero for any missed tests or exams. In exceptional circumstances, and at the discretion of the professor, students may be permitted to complete a missed test or exam in the Testing Center. Due to the complexity of lab experiments and exercises, missed lab sessions cannot be rescheduled, and a grade of zero will be assigned for missed lab assignments. Review College Students' Rights and Responsibilities and see Appendix B for MRT Attendance Policy.

Assignments:

Assignments are due on the specified date. Students must contact the professor in advance if unable to meet a deadline. Without prior arrangement, late submissions may be penalized at a rate of 10% per day. Professors provide sufficient time to complete all assignments and lab reports. Assignments must also comply with the College Academic Integrity policy.

Practice Labs and IV Lab:

Students are welcome to participate in supervised evening practice labs each semester to further develop the skills they are learning. Attendance is voluntary. To ensure a positive and productive environment, anyone who disrupts the learning experience may be asked to leave and could be restricted from attending future sessions.

Any student volunteering for an intravenous (IV) injection must complete the consent form located in Appendix F.

Lab Work & Radiation:

Radiation (TLD) badges must be stored in the appropriate location in the lab and **worn in the lab at all times when the x-ray unit is energized.** Radiation badge reports are received and reviewed by the Coordinator. Students or faculty who show any exposure on the report will receive an email from the Coordinator scheduling a meeting to discuss reasons for exposure and to develop an action plan.

Students must not energize the x-ray unit unless an MRT is in the lab. (See Radiographic Safety Appendix C)

Academic Integrity

Professional ethics are a cornerstone of Medical Radiation Technology. Students are encouraged to demonstrate integrity in all academic work—whether in class or online—by completing assignments, tests, and exams honestly and responsibly. For further guidance, please refer to the College's Academic Integrity Policy.

Student Success

The MRT program is committed to supporting student success. Professors monitor academic performance and attendance and will refer concerns to the Program Coordinator as needed. When challenges arise, a meeting may be arranged to discuss a Student Success Plan (Appendix E). Students may also access a the Student Success Centre for additional support and guidance.

Student Success Centre

Student Accessibility Services (Accommodation Plans – sas@confederationcollege.ca)
Student Success Advisor; Tony Wood (tony.wood@confederationcollege.ca)
Counsellor; Linda Gluck (linda.gluck@confederationcollege.ca)

Peer Tutors Request a peer tutor using the online form.

STUDENT SEMESTER PROMOTION POLICIES

Grading of Didactic Courses

The final grade in a course is based on the evaluation criteria presented on the course outline available at the start of each semester.

The grading system is: A 80-100 (GPA = 4 points)

B 70-79.9 (GPA = 3 points)

F below 70 (GPA = 0)

Students must successfully pass (A or B grade) all RA courses in a semester to advance to the next semester. Prerequisite and co-requisites are designated for each course of the program (see MRT Course Continuity chart p.8). This means certain courses must be passed to advance to the next course (prerequisite) and certain courses must be taken at the same time (co-requisites).

To graduate, students must achieve a 70% (3.0 or higher) final grade in all RA courses and Anatomy & Physiology I and II. Other non-RA courses and electives must also be passed to graduate.

If a student fails to achieve a passing grade in an RA course, the faculty and the coordinator review the student's performance. **One upgrading opportunity (exam rewrite) is allowed per semester** to allow a student to achieve a passing grade in an RA course. To qualify for a rewrite the student must:

- achieve a grade within 10% of the passing grade (>60%)
- attended over 80% of scheduled classes of the course
- submitted all course assignments on time

Once an exam rewrite is passed the final grade entered on the transcript will be 70%.

Grading of Clinical Courses

Clinical courses (RA410, RA510 and RA610) are graded with Credit/No Credit.
Students must receive a Credit in RA410 to advance to RA510. Subsequently, a Credit in RA510 is required to advance to RA610.
Assessment information is available on the course outlines, which will be posted to Blackboard for students to download.

Readmission:

If a student is unsuccessful in Sem 1, readmission entails reapplying into the program. Readmission to the program after any other semester is subject to seat availability. The student must meet with the Program Coordinator. Please see Confederation College's Program Re-Admission policy for further information.

Students that are unsuccessful in a clinical rotation course (RA410, RA510 or RA610) are unlikely to be readmitted and the decision to readmit is determined by the Dean of the Academic School in conjunction with the clinical partners.

A student that pauses the program due to a leave will have up to 6 years from original program start to complete the program.

Records Policy:

All original records will be stored in a secure environment at the College or partner hospital. Records include all clinical evaluations, competency sheets and logs, attendance records, doctor's notes, tests, exams and in-house training (sign off sheets). These records are not considered part of the Permanent Record as described by Policy 5-2-01 Student Records. Records will be stored for 1 ½ years post-graduation to cover the time of four possible CAMRT exam attempts.

After midterm and final clinical evaluations are completed and signed by the student for each semester, records are forwarded to the MRT coordinator.

Student files are confidential information and are securely shredded before discarding.

Access to Student records must follow Operating Practice policy 5-2-01 Student Records. A Statement of Release of Information form must be completed and signed by the student to release information to third parties, such as Accreditation Canada.

All documents relative to any student appeals or petitions are maintained by the registrar as part of the active record.*

*Guidelines for Retention, Disposal, Access to and Maintenance of Student Records is available in the Registrar's office.

COLLEGE POLICIES AND PROCEDURES

Students should familiarize themselves with the College policies located at; http://www.confederationcollege.ca/academic-policies.

Some key policies to review are:

Grading Policy Section 5-1

Academic Appeal Policy Section 5-1

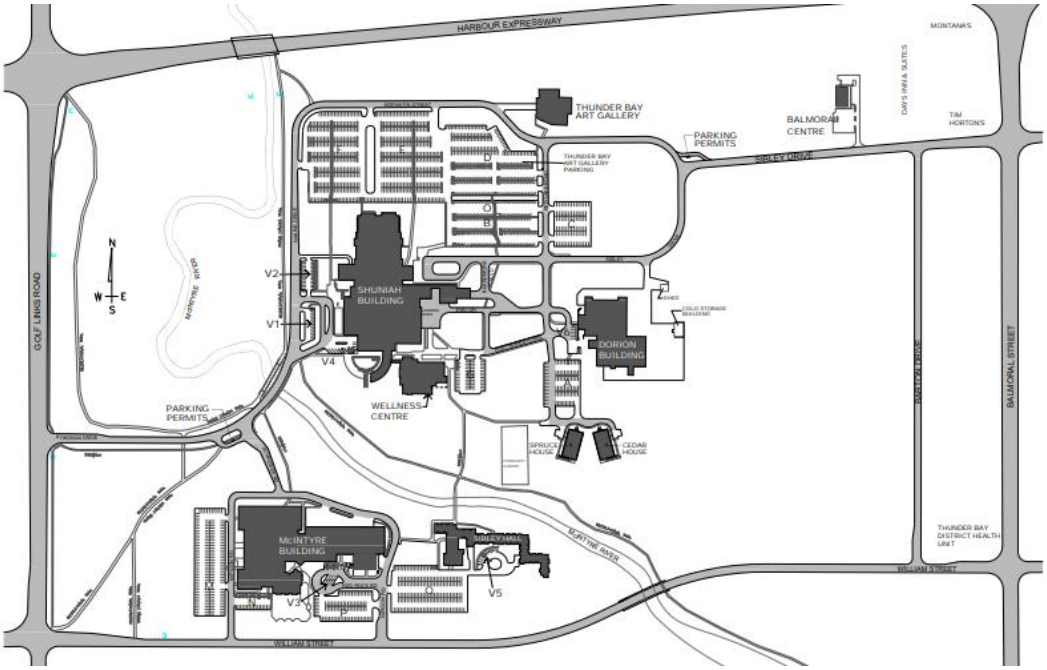
Student Rights & Responsibilities Section 5-5

Student Code of Conduct Section 5-5

Academic Integrity Section 5-5

Electronic Devices in Class Section 5-5

MAP OF MAIN CAMPUS



Appendix A

MEDICAL RADIATION TECHNOLOGY PROGRAM COURSE DESCRIPTIONS

SEMESTER 1

CS 050 – College Writing (42 hrs.)

In this course, students will be in introduced to various writing styles with a thematic focus on current issues. This course will help students to express themselves clearly and correctly in written form. Students will engage in reflective writing through critical analysis of assigned readings. Students will express their thoughts and how and why they think that way through the concepts of Reflection, Respect, Realization and Responsibility. The course will also focus on the development of academic writing skills to effectively compile and present research in essay form according to the APA style of documentation.

AB 113– Anatomy and Physiology I (42 hrs.)

This course is designed for students enrolled in the Paramedic, Medical Radiation Technology, and the Dental Hygiene programs. It is a general introduction to the structures and physiology that make up the human body. It provides the basis for subsequent study of pathophysiology and patient care procedures.

RA 111 – Patient Management (42 hrs.)

Patient Management is a comprehensive overview of methods an MRT will use to manage the patient while in the Diagnostic Imaging Department and other hospital environments. The student will demonstrate skills in communicating with, assessing the condition of and provision of a safe environment for the patients in their care. Skills acquired in this course will be practiced in Clinical Lab and complement skills acquired in General Radiography.

RA 113 – General Radiography I (42 hrs.)

General Radiography I is the first of three courses detailing the positioning of patients and X-ray equipment and use of accessory apparatus in the examination of the patient for general radiographic examinations. The student will demonstrate skills in radiography of the upper limb, shoulder girdle, lower limb and pelvic girdle. Skills acquired in this course will be practiced in Clinical Lab and be complemented by skills acquired in Patient Management and knowledge of radiographic equipment acquired in Radiographic Equipment Operation as well as knowledge acquired in Radiographic Anatomy and Pathology.

RA 115 – Radiographic Equipment Operation I (42 hrs.)

Radiographic Equipment 1 is the first of three courses detailing the design and operation of digital and conventional diagnostic x-ray, radiographic image processing and accessory equipment. The student will acquire knowledge of the science behind radiographic image production, x-ray production, and manipulation of all exposure parameters to produce and evaluate the quality of radiographic images and adapt the exposure for patient-specific results. The student will establish expertise in digital and conventional radiographic imaging principles by experimentation in the radiography lab.

RA 117 – Clinical Lab I (42 hrs.)

Clinical Lab 1 is the first of three courses in which the student will demonstrate and gain competence in the practice of medical radiation technology of examinations studied in RA113 in a clinical simulation setting prior to practice in an actual clinical environment. The student will demonstrate patient handling skills studied in RA111. The student will demonstrate skills in digital image processing and utilize anatomical phantoms to produce x-ray images on digital imaging media. The student will also use computers to evaluate, critique and label images for anatomy demonstrated. As well the student will discuss common pathologies demonstrated and alternative modalities and related procedures.

RA 119 – Radiographic Anatomy & Pathology I (42 hrs.)

In this course the student will demonstrate knowledge of normal anatomy and variants of the upper limb, shoulder girdle, lower limb and pelvic girdle that will complement the radiographic examinations of these regions studied in RA113. The student will be introduced to the study of disease and also demonstrate knowledge of pathology of the skeletal system and identify this anatomy and pathology on radiographic images. The student will practice skills in identifying anatomy and pathology in RA117.

SY 066 - Sociology Of Community: The Aboriginal Context (42 hrs.)

This course will provide students with an introduction to contemporary issues within Aboriginal families and communities in Northwestern Ontario (NWO) and Canada. Students will examine traditional and contemporary representations of Indigenous cultures. They will investigate the unique socio-political relationships between Canada and Aboriginal peoples with an emphasis on colonial, legal and political issues. In examining the contributions, challenges and aspirations of Aboriginal families and communities, students will be encouraged to reflect on their own cultural expression and experience in NWO.

SEMESTER 2

AB 214 – Anatomy and Physiology II (42 hrs.)

This course is the second part of a two part anatomy and physiology course designed for students enrolled in the Paramedic, Medical Radiation Technology, and Dental Hygiene programs. It is a continuation of the structures and physiology that make up the human body. It will complete the study of the body in preparation for the study of pathophysiology and patient care procedures.

RA 208 – Professional Practice/IPE (42 hrs.)

This course will introduce the student to the current ethical and legal issues of professional practice in medical radiation technology and the other health professions. The student will demonstrate knowledge of all legislation affecting the medical radiation technologist, the functions of professional and regulatory organizations, risk management strategies and the Canadian Health Care system. The student will also explore the roles of and interactions with other health care and community services professionals. Students will be introduced to related disciplines for the purpose of reviewing data from reports and other previous studies.

RA 209 – Radiographic Anatomy/Pathology II (42 hrs.)

In this course the student will demonstrate knowledge of normal anatomy and variants of the thoracic cage, respiratory system, abdomen, vertebral column and skull that will complement the radiographic examinations of these regions studied in RA211. The student will also demonstrate knowledge of pathology of the respiratory, urinary, digestive, cardiovascular, reproductive, and vertebral column and will identify this anatomy and pathology on radiographic images. The student will practice skills in identifying anatomy and pathology in RA217.

RA 211 – General Radiography II (42 hrs.)

General Radiography II is the second of three courses detailing the positioning of patients and X-ray equipment and use of accessory apparatus in the examination of the patient for general radiographic examinations. The student will demonstrate skills in radiography of the thoracic cage, respiratory system, abdomen, skull and vertebral column. Skills acquired in this course will be practiced in Clinical Lab and be complemented by knowledge of radiographic equipment acquired in Radiographic Equipment Operation as well as knowledge acquired in Radiographic Anatomy and Pathology.

RA 213 – Radiographic Equipment Operation II (42 hrs.)

Radiographic Equipment 2 is the second of three courses detailing the design and operation of digital and conventional diagnostic x-ray, radiographic image processing and accessory equipment. The student will acquire knowledge of the science behind x-ray energy absorption, manipulation of exposure factors and equipment to deal with the consequences of energy absorption on image quality and patient dose, x-ray generator function, fluoroscopic x-ray equipment function, special procedure equipment function, and mobile radiographic and fluoroscopic equipment function. This knowledge will support the principles of radiation protection discussed in Radiation Safety. The student will establish expertise in radiographic imaging principles by experimentation in the radiography lab.

RA 215 – Radiation Safety (42 hrs.)

In Radiation Safety the student will apply knowledge of X-ray energy absorption discussed in Radiographic Equipment Operation II to safe radiation practices for patients, technologists, staff, caregivers and the general public. These skills will be applied in Clinical Lab where the student will make decisions regarding the balance of radiation safety and image quality using the ALARA and AHARA principles of radiation management. The biological effects of radiation on cells, tissues, organs and body systems will be discussed. Students will learn the somatic, genetic, acute and delayed effects of radiation exposure.

RA 217 – Clinical Lab II (42 hrs.)

Clinical Lab II is the second of three courses in which the student will demonstrate and gain competence in the practice of medical radiation technology of examinations studied in RA211 in a clinical simulation setting prior to practice in an actual clinical environment. The student will demonstrate patient handling skills studied in RA111. The student will demonstrate skills in digital image processing and utilize anatomical phantoms to produce X-ray images on digital imaging media. The student will also use computers to evaluate, critique and label images for anatomy demonstrated. As well the student will discuss pathology demonstrated in radiographic images, and covered in RA209, with classmates and professors.

RA 219 – Radiographic Procedures (42 hrs.)

In Radiographic Procedures the student will demonstrate knowledge and understanding of radiographic examinations which use contrast agents and/or specialized technology to enhance anatomy and pathology not normally visualized in general radiographic procedures. Topics will include preparation, support and examination of the patient for special procedures of the urinary, digestive, reproductive systems as well as diagnostic and interventional procedures of the cardiovascular system. Pharmaceuticals typically used in these procedures and post procedural care of the patient will also be discussed.

Clinical Fridays-Students will be scheduled one Friday during semester 2 and 3 at Thunder Bay Regional Health Sciences Centre (TBRHSC) to observe examinations and procedures taught in the didactic courses. This is subject to approval by TBRHSC each semester.

SEMESTER 3

CS 224 – Introduction to Research Method (42 hrs.)

This course concentrates on an introduction to basic research methods for both qualitative and quantitative research used primarily in medical fields. Students will be expected to explain the fundamental principles of research methodology and recognize how research principles are applied in health science research. An overview of various research-based techniques and strategies will be covered. The students will discuss the ethical issues involved with research and demonstrate knowledge of relevant ethical foundations. A review of literature will be completed and may be applied to their secondary course towards a full research based project. This course will be a precursor to a secondary course where students will participate in and complete a full research based project.

PY 169 – Interpersonal Communication Skills (42 hrs.) OL218 is an on-line version –not included in your tuition.

Using a combination of theory and acquired skills, students will learn to express themselves more effectively while preserving the dignity of everyone involved. They will develop the confidence necessary to control their lives without trying to control others in the process. This course facilitates personal growth as the students develop more effective self-expression and healthier relationships. Experiential learning, using a variety of techniques, will be emphasized. Students will participate in role-play, discussions, presentations and personal reflections.

RA 311 – Adaptive Imaging (42 hrs.)

In Adaptive Imaging students will demonstrate and apply critical thinking skills to adapt radiographic procedures in pediatric, geriatric, bariatric, mobile, trauma, and operating room imaging as well as examination of patients with special needs.

RA 313 – Radiographic Equipment Operations III (42 hrs.)

Radiographic Equipment 3 is the third of three courses detailing the design and operation of digital and conventional diagnostic x-ray, radiographic image processing and accessory equipment. The student will acquire knowledge of the science behind and use of digital imaging equipment, PACS systems, computed tomography equipment, mammographic equipment, and bone mineral densitometry equipment. The student will establish expertise in digital imaging principles by experimentation in the radiography lab.

RA 314 – Quality Management (42 hrs.)

In Quality Management the student will demonstrate knowledge and understanding of various aspects of image quality and quality management techniques. The student will also demonstrate skill in performing, interpreting and taking corrective action on the results of quality control tests of radiographic, image processing and accessory equipment.

RA 315 – Cross-Sectional Anatomy/Pathology (42 hrs.)

In this course the student will demonstrate knowledge of sectional anatomy and pathology typically demonstrated in transverse, sagittal and coronal planes. CT, MR, PET and US images will be used to demonstrate anatomical structures and pathological lesions. Cross sectional anatomy modules are completed on-line and pathology lectures in-class.

RA 317 – Clinical Lab III (42 hrs.)

Clinical Lab III is the last of three courses in which the student will demonstrate and gain competence in the practice of medical radiation technology of examinations studied in RA113 and RA211 in a clinical simulation setting prior to practice in an actual clinical environment .The student will demonstrate patient care skills studied in RA111and perform complete examinations with simulated patients. The student will demonstrate skills in digital image processing and utilize anatomical phantoms to produce X-ray images on digital imaging media. The student will apply knowledge of the principles of radiographic exposure factor selection and manipulation acquired in Radiographic Equipment Operation to formulate an exposure technique chart for the radiography lab X-ray equipment. The student will also apply knowledge of the calculation of patient entrance exposure doses acquired in Radiation Safety to add dose calculations to the exposure technique chart.

RA 319 – Computed Tomography (56 hrs.)

Students will demonstrate knowledge and understanding of examinations performed in computed tomography (CT). Students will learn to prepare and administer contrast media. This course will be complemented by the knowledge of sectional anatomy acquired in RA315 as well as knowledge of CT equipment acquired in RA313.

SEMESTER 4

RA 410 – Clinical Rotation I (560 hrs.)

This is the first of three consecutive 15-week clinical segments over a one year period in which the student will apply the knowledge and practical skills they have demonstrated in the didactic portion of the program curriculum to the radiographic examination of patients. Following an appropriate orientation period, students will gain practice in performing routine procedures of the extremities, shoulder and pelvic girdle , thorax, spine and abdomen under direct supervision of a Medical Radiation Technologist. Learners will interact professionally with all members of the health care team and adhere to the policies and procedures of the clinical partner sites. Learners will evaluate anatomy and positioning to determine if additional images are necessary. The diagnostic quality of the images and student performance will be assessed, with appropriate remedial action taken if necessary. The student must be able to travel to and be responsible for the expenses of travel and accommodations associated with clinical rotations. Students in dual placement (District Hospital/TBRHSC) will complete a combination of general radiography competencies and all CT competencies in Semester 4.

GENERAL EDUCATION ELECTIVE (Chosen by the student.) (42 hrs) Can also be taken in the spring/summer of year 1. This course can be taken online.

RA 412 – Research Study (42 hrs.)

The Research Study is a self-directed project in which the student will apply the skills developed in the Semester 3 Research course. The student will select a topic, with faculty consultation, that has technical and educational applications to Medical Radiography. Students are encouraged to submit their work for publication and awards to the Ontario Association of Medical Radiation Sciences and/or the Canadian Association of Medical Radiation Technologists.

SEMESTER 5

RA 510 – Clinical Rotation II (560 hrs.)

This is the second of three consecutive 15- week clinical segments over a one year period in which the student will apply the knowledge and practical skills they have demonstrated in the didactic portion of the program curriculum to the radiographic examination of the patients. Students will build on the clinical competencies demonstrated in Clinical Rotation 1. Students will gain practice in performing routine radiographic and fluoroscopic procedures of the skull, digestive, urinary and reproductive systems as well as mobile radiography under the direct supervision of a Medical Radiation Technologist. Operating room procedures will be introduced, with the learner advancing from an observed to assisting level. Students will observe and participate in a quality control program of the placement site. The clinical rotation may also include orientation to computed tomography (CT). Learners will interact professionally with all members of the health care team and adhere to the policies and procedures of the clinical partner sites. Learners will evaluate anatomy and positioning to determine if additional images are necessary. The diagnostic quality of the images and student performance will be assessed, with appropriate remedial action taken if necessary. Emphasis is placed on the development of critical thinking and problem solving skills. Due to availability of certain radiographic procedures, required competencies of RA 510 may vary depending on the location of the clinical placement. The student must be able to travel to and be responsible for the expenses of travel and accommodations associated with clinical rotations.

Comprehensive Practice Exam:

This exam will be scheduled at the end of May by your Clinical Lead. This is a *practice exam* of 100 multiple choice questions based on your first year (S1+2) of theory and the CAMRT exam blueprint. The exam will be marked but is not included as part of the RA 510 assessment. Students are expected to prepare properly. The purpose of the exam is to review textbook theory after having completed their first semester of clinical placement.

SEMESTER 6

RA 610 – Clinical Rotation III (560 hrs.)

This is the last of three consecutive 15- week clinical segments over a one year period in which the student will apply the knowledge and practical skills they have demonstrated in the didactic portion of the program curriculum to the radiographic examination of the patients. Students will build on clinical competencies demonstrated in previous semesters and gain practice in computed tomography, angiographic/interventional procedures, bone mineral density (BMD) and mammography under the supervision of an MRT. Learners will interact professionally with all members of the health care team and adhere to the policies and procedures of the clinical partner sites. Learners will evaluate anatomy and positioning to determine if additional images are necessary. The diagnostic quality of the images and student performance will be assessed, with appropriate remedial action taken if necessary. Emphasis is placed on the development of critical thinking and problem solving skills. Students will demonstrate the independent functioning of an entry-to-practice technologist. Students who have achieved all of their required competencies can be scheduled rotations in related modalities. Due to availability of certain radiographic procedures, required competencies of RA 610 may vary depending on the location of the clinical placement. The student must be able to travel to and be responsible for the expenses of travel and accommodations associated with clinical rotations.

RA 618 – Exam Review (42 hrs.)

In this course the student will consolidate knowledge of the core theory in the Medical Radiation Technology Program in preparation for the Comprehensive Exam which takes place at the end of the semester. Review will include topics within the 13 modules of the CAMRT Curriculum Guide effective for the 2011 Certification exams. Review will be provided through exercises, reading and test questions.

RA 608 – Comprehensive Exam (42 hrs.)

The student will successfully complete an examination at the end of the Semester 6 Clinical Rotation covering the theory portion of the Medical Radiation Technology Program in preparation for the national certification examination of the Canadian Association of Medical Radiation Technologists. Topics examined will include: patient management, general radiography, radiographic equipment operation, radiographic anatomy & pathology, professional practice, radiation safety, radiographic procedures, adaptive imaging, quality management and computed tomography. The examination will be 200 multiple choice questions to be completed in 4 hours. Students are encouraged to complete the CAMRT on-line practice exam.

Appendix B

Confederation College MRT Attendance Policy

Success is directly related to attendance! It is expected that students attend all classes. Absences for legitimate and documentable reasons do occur BUT your Professors need to be made aware – either prior to, or immediately following the absence. Waiting to contact a Professor for multiple weeks or months is not acceptable.

If you are absent from class you are responsible for what you missed. Your Professor will not come to you or re-teach the material.

At the College:

MRT Faculty must be contacted prior to class, if a student cannot attend a lab, class or test.

Students are expected to write tests and final examinations at the times scheduled by the professor. Professors are not obligated to provide for missed tests, labs or examinations, and students may have to forfeit marks allocated to such work if absent. The Professor may provide accommodation under exceptional circumstances.

Missed Tests & Assignments

1. Legitimate and documentable reasons for missing class need to be discussed with your Professor. Examples include the following:
    a. Health issues:
        i. documented by doctor's note, walk-in clinic note, prescription copy, ID bracelet from emergency, Counsellor's letter, and/or Professor's approved evidence
    b. Court summons, jury duty:
        i. documented by paperwork
    c. Death of family member
        i. documented through discussion with your Professor

2. Missed tests/exams/quizzes without a legitimate reason may receive a grade of zero (0).

3. Assignments, projects, essays, etc. (given as "homework" with a due date) are due on the assigned date. Late assignments may be subject to a penalty of up to 10% per day and will not generally be accepted beyond one week after the assignment due date.

At the Hospital/Clinical Placement:

The Clinical Lead or designate must be contacted before the assigned clinical shift if a student cannot attend.

Shift changes must be approved by the Clinical Lead or designate.

Sick time totaling more than the days identified below must be made up. Excess time missed will be made up during days off.

SEMESTER	DAYS ALLOWED -ABSENTEEISM
4	3
5	3
6	3

Students should be aware that extending clinical placement may result in costs over and above the tuition fee charged to the student and those costs are the responsibility of the student. The timing of the placement is dependent on clinical site (hospital) availability. This means if a new cohort of clinical students are arriving at the hospital there might not be space. Clinical competency targets are in place to keep students on track in their progress and reduce the chance of any placement extensions.

Students will follow the absenteeism policy of their clinical site. In some cases, a doctor's note must be submitted when 3 consecutive days are missed.

Students that become ill while in attendance may be asked to visit the emergency department of their hospital.

Non-medical time off requests must be made to the Program Coordinator or Clinical Lead to receive approval. If approved, missed time will be re-scheduled by the Clinical Lead.

If a student has not achieved all required competencies by the end of Semester 6, an additional week of placement will be scheduled to achieve those competencies.

Appendix C

GUIDELINES for the Classroom and X-ray Lab

Classroom Guidelines

College classes require a significant amount of personal accountability. Policies regarding Academic and Personal conduct can be accessed on the College's website. These policies outline the responsibilities of both students and professors. Published College policies & procedures form the "rule-book" and should be consulted for clarification on specific issues.

Our goal at Confederation is to create open, inclusive, and respectful learning environments for everyone – individual students, classmates, professors and staff.

General classroom structure

1. On the first day or two of a class your Professors will inform you of specific class rules and provide you with a course outline, that will explain the grading system, and a class schedule with important dates and deadlines. Usually this information is posted in Blackboard, so refer to it often to avoid missing any deadlines.

2. Online/blended courses will make use of appropriate technologies to do the same – usually with introductory emails providing essential information.

3. Professors will use your college email address and/or Blackboard as a means of communication.

4. Breaks will be given in class as per the Professor's discretion. For Example, two 10 minute breaks may be combined into one longer break to ensure you have time to grab a tea/coffee.

PROFESSIONAL behaviours in classroom

1. Drinking water or tea/coffee is acceptable in the MRT classroom.

2. Small snacks are generally okay, however eating large meals during class time is not acceptable. You should wait for a break to eat in the classroom. Ensure you properly dispose of garbage.

3. Turn off your cell phone in class. If you must answer a call, leave the classroom quietly so you do not disturb the class.

4. Talking to classmates while the Professor is speaking is considered disrespectful and disruptive.

5. Arrive on time to class. It is disruptive to the class and the professor when students continually stream in mid-class. If you are late, enter the classroom as quietly and discreetly as possible. Some teachers require students to wait for a break to enter the class if they are late.

6. If you must leave the class early, do so as quietly as possible. Have a valid reason for leaving early and tell your Professor before the class begins. It is less disruptive to leave during a class break.

7. You are encouraged to ask for help whenever you need it. Seeking support is a normal part of learning and is always welcomed by your professors.

8. Professors recognize that there are many sources of knowledge. It is acceptable for Professor's to say "I don't know the answer to your question but will find out." This is part of the learning process.

9. Students are encouraged to actively participate during the class. Students are encouraged to pay attention, take notes, participate in classroom discussions, and ask questions. Raise your hand to ask questions or make comments when the Professor is lecturing. Speak freely and respectfully during group discussions. It is not rude to have a different opinion if you express it respectfully.

10. Professors must give permission before students can record lectures. Because of the disclosures that occur in many class discussions, permission is often denied.

11. The virtual classroom is somewhat different. Each Professor will set their own virtual classroom guidelines.

12. There will be many opportunities for group work. Working in a team is a key component of the MRT profession. All group members are expected to be respectful, patient and considerate of each other remembering that everyone learns at a different rate.

Additional expectations

1. Have reasonable expectations regarding email/telephone response times. Messages sent at late hours or on weekends will not be responded to until appropriate working hours.

2. When leaving messages for Professors, always (and clearly) include your full name, contact information, and specific class – remember your professors may have 100s of students at any given time.

3. When scheduling a meeting outside of class time with your Professor, please ensure you attend. If you cannot make an appointment, contact your Professor beforehand to let him/her know.

4. Some Professors may post office hours (physical or virtual), where you can drop in to meet with them.

General MRT LAB Safety

1. Develop safe work habits. Safe habits result from continuous alertness and caution. Safety must not be neglected in the interest of urgency.

2. Don’t guess. Before proceeding with any laboratory experiment or radiographic image assignment, study the information provided carefully to ensure that you understand thoroughly what is required. If in doubt, ask for clarification.

3. Operate x-ray and other ancillary equipment only if authorized in a scheduled and supervised laboratory session, practical positioning assignment, or when permission has been granted and is supervised by an MRT instructor.

4. Report faulty equipment immediately. Do not attempt to make repairs.

5. Always obey warning signals above doors to radiographic rooms, interlock signals and computer pop-up messages.

6. Know the location of all Emergency Stop buttons.

7. Be aware of finger pinch points on any equipment.

8. Report all unsafe conditions or acts which may prove to be hazardous. All incidents must also be reported immediately to your supervisor. Persons in need of medical aid must be escorted to the Health Centre.

9. If you feel ill during class, notify an instructor and report to the College Health Centre for medical aid.

10. Prevent the spread of infection. Masks to be worn at all times in the MRT classroom and lab. Use hand sanitizer. Clean your work area when you are finished. Other specific Covid-19 protocols will be discussed in class/lab.

11. Wear appropriate clothing for practical positioning exercises.

12. Return all equipment to the correct place if not in use.

13. Know the location of the first aid kit. Notify the Coordinator of an incident requiring the kit to be opened.

RADIOGRAPHIC Safety

1. Radiation monitoring badges must be worn by all students and instructors during laboratory exercises and practical positioning sessions within the live labs.

2. No exposures are to be made on any student simulating a patient during laboratory exercises, or during practical positioning sessions.

3. Never energize an x-ray unit unless there is an MRT instructor present in the laboratory area.

4. Always stand in the control booth when exposures are being made. For mobile radiography, stand at least 3m from the x-ray tubehead with a full lead apron on. Exposures using the Mobilett are allowed only inside the x-ray labs.

5. Doors to radiographic rooms must be closed when exposures are being made. Last person out closes the door and takes the exposure. A safety interlock prevents exposures when the door is open.

6. Protective clothing (aprons and gloves) must be worn when the procedure requires it.

7. Protective devices (gonad shield, lead protection, etc.) must be placed in the appropriate positions on all simulated patients, except in situations where they would likely obscure the area of interest.

8. Always use the smallest field size which would cover the area of interest. The edge of the beam (collimation) should be seen on all borders of the image.

9. Exposed cassettes must not be left on the x-ray table or in the immediate vicinity when subsequent exposures are to be made.

10. Cassettes must be stored adjacent to the CR unit in an upright position.

11. Perform secondary erasures on all CR cassettes at the beginning of the semester or after a scheduled break.

12. Before making an exposure, check the technical factors set (kVp, mAs) to ensure that they are optimum values for the particular radiographic exam, and that the ready light is on.

13. Quarterly reports of personal dosimeter readings are reviewed by the Program Coordinator. If you have an exposure reading, the Program Coordinator will contact you and schedule a meeting to discuss.

14. At the end of each laboratory exercise or practical positioning session, labs must be left clean and tidy; all lights must be switched OFF, x-ray unit control must be in the OFF position.

15. Cassettes must not be subjected to heavy weights or pressure.

ELECTRICAL Safety

1. Dry hands before handling any electrical equipment. Do not use cleaning fluids on any x-ray components.

2. During the normal course of work, inspect cords, plugs, switches, sockets, and outlets to determine damage or wear and tear. Report faulty equipment immediately.

3. Report any electrical or unusual radiographic exposure problems immediately to your instructor.

4. Warning signs may include a minor shock, overheating, sparking, or an unusual noise or odour.

5. Report all cases of overload breaker activation or similar safety circuit operation or indication.

6. In the event of an electrical emergency, depress an Emergency Stop then switch off the main supply before attempting to touch or move anything.

7. In an electrical fire, switch off the mains supply, close the door behind you, and pull the nearest fire alarm. Do not attempt to control the fire if it spreads, warn the occupants of the building, and make sure the fire department is notified immediately.

8. Carbon dioxide (CO_2) or a dry chemical extinguisher may be used for fires on electrical wiring or equipment. (These extinguishers have red cylinders with black nozzles.)

WHIMIS

All students must complete WHIMIS training during their second semester. The 2015 WHMIS program can be completed for free at http://aixsafety.com/free-whmis-2015-training-and-free-test-and-certification/. At the end of the WHMIS training you will complete a test and print out a certificate to submit to the Coordinator.

Appendix D

Clinical Requirements Checklist

CRITICAL CLINICAL DOCUMENTS CHECKLIST--SCHOOL OF HEALTH AND COMMUNITY SERVICES		
Please ensure you have all documents completed, copied, and presented during Semester 3. ***This may be completed electronically on Blackboard.***		
Name:	**Program:**	MEDICAL RADIATION TECHNOLOGY
TB Skin Test required at end of Sem 1. Copies of the following documents must be submitted no later than the end of Sem 3:		

Document	Completed	Expires
1. Immunization and Communicable Disease Form (found on the Health Centre College website and filled out annually)		
2. Immunization Record:		**Note: submit all immunization records to the College Health Centre**
Diphtheria/Tetanus (every 10 yrs)		
Pertussis		
Polio		
Measles/Mumps/Rubella (2 vaccines)		
Hep B Vaccine Series (3 vaccines)		
Varicella		
Influenza (flu) vaccine (annual). This is *recommended*		
3. Serology* for: Hep B; Measles, Mumps & Rubella; Varicella (if any are non-reactive then boosters are required)		
4. Tuberculosis:		**Note**: **submit TB records to the Health Centre.** Book TB skin tests through the Health Centre or visit Ontario 211 website for walk-in clinics that will perform TB skin tests (fees apply)
• Mantoux Test (skin) (2-step once)		
• Mantoux Test (skin) (1 step annually)		
• Chest X-Ray (if skin test positive)		
5. **Covid-19** full vaccination as per Health Canada		**Note**: **submit records to the Health Centre.**
6. Criminal Records Check with Vulnerable Sector required**		**Note**: If CRC is not clear of all incidents, an appointment must be made with program coordinator to discuss.
7. CPR (HCP or BLS level): (annual renewal)		**Note**: **submit records to the MRT Coordinator.**
8. First Aid (every 3 years)		**Note**: **submit records to the MRT Coordinator.**
9. N95 MASK FIT		**Note**: **submit records to the MRT Coordinator.**
10. WHMIS (will be completed during school year)		**Note**: **submit records to the MRT Coordinator.**

*Serology is only required once.

**Criminal Reference Check (CRC) with Vulnerable Sector Screening is required for MRT. A letter requesting a CRC can be obtained from your program coordinator. You must have a current CRC at all times (annual renewal is required).). Placement agencies may not accept students with an unpardoned criminal record and will result in the student being unable to participate in clinical placement courses, which will prevent the student from graduating.

Submit all immunization records to the Confederation College Health Centre. Submit all other records to your program coordinator. If you have any questions please contact your program coordinator, the Health Centre, or visit your program's website.

Appendix E

SCHOOL OF HEALTH AND COMMUNITY SERVICES
Student Success Plan

Student Name: _____ Program: _____

Professor Name: _____ Date: _____

Issues possibly impeding success

_____

_____

_____

_____

Student Comments Relating to the Above

_____

_____

_____

_____

_____

Student/Professor Collaborative Plan

_____

_____

_____

_____

Date of Review: _____

Outcome of Review: _____

_____

_____

_____

I recognize that the above behaviours may impede my success and that this plan is intended to support my ability to be successful.

_____ _____

Student Signature Professor Signature

_____ _____

Date Date

Copies for the following individuals: 1 Student; 2 Professor; 3 Coordinator

Appendix F

Confederation COLLEGE
School of Health and Community Services

INFORMED CONSENT/RELEASE & WAIVER FORM

I, _____, hereby voluntarily consent to:
(Name)

☐ Being given a subcutaneous injection of sterile normal saline

☐ Having my blood drawn by venipuncture or finger stick

☐ Having an IV port inserted

☐ I UNDERSTAND THAT AN MRT STUDENT WILL BE ADMINISTERING THE ABOVE PROCEDURE(S), AND THAT ANY SPECIMENS COLLECTED WILL NOT BE USED FOR ANY TESTING PURPOSES.

POSSIBLE RISKS MAY INCLUDE:

- Pain
- Bleeding, bruising or irritation at the puncture site
- Risk of infection at the puncture site
- Risk of fainting

☐ I UNDERSTAND THE RISKS.

For SAFETY REASONS these are the requirements of ELIGIBLE VOLUNTEERS:

- Be over the age of 18 years old
- Not under the influence of drugs or alcohol
- No known or suspected blood borne illness such as Hepatitis B, Hepatitis C or HIV
- No known blood clotting disorder
- No known skin disorder where skin is susceptible to tears or poorly heals
- No known allergy to IV equipment, Tegaderm or medical tape
- Not susceptible to fainting or other phobia responses when exposed to needles
- Considered in general good health; physically, mentally and emotionally

As a volunteer you may rescind consent at any time without prior notice.

☐ I AM FOLLOWING ALL ABOVE SAFETY REASONS for volunteer ELIGIBILITY.

This consent is for the Academic Term: _____

I AM AWARE OF THE POSSIBLE RISKS INVOLVED, AGREE TO PROCEED, AND WAIVE ANY CLAIMS AGAINST CONFEDERATION COLLEGE, ITS STUDENTS OR STAFF, AND RELEASE THEM OF ANY RESPONSIBILITY IN LAW.

Name (print)	Signature	Date
Witness (print)	Signature	Date