

Area of Interest: Environmental and Applied Sciences

# Applied Nuclear Science and Radiation Safety (Co-op and Non Co-op Version)

Ontario College Diploma

Program Code: 1215X03FPM

2 Years

Pembroke Campus

## **Our Program**

## Learn how to survey, monitor and control radiation exposure for a career in the nuclear industry.

The two-year Applied Nuclear Science and Radiation Safety Ontario College Diploma program is the only program of its kind in Canada. In this program, you learn to monitor radiation levels and implement preventive measures critical to ensuring the safety of employees and members of the public, and providing for protection of the environment.

Learn to effectively complete important tasks focusing on radiation safety, such as detecting and measuring radiation levels, mitigating contamination hazards and providing guidance and information to personnel to control contamination and minimize radiation exposure.

Gain theoretical and practical understanding of nuclear operations fundamentals, radiation detection and measurement, waste management, decontamination procedures and incident assessments. Learn how detection instrumentation operates and proper techniques for detecting radiation and contamination. Your courses focus on regulatory frameworks and compliance with internationally accepted radiation protection principles.

Students also have the option to gain real-world experience through a paid co-operative education (co-op) work term (see Additional Information for more details). Please note that places in the co-op work term are subject to availability and academic eligibility. Please note admission to the co-op program does not guarantee a co-op placement.

Graduates may find employment in:

- nuclear power plants
- nuclear-based research and development facilities
- decontamination/waste storage facilities
- uranium mines/mills
- radiation protection contract companies
- isotope production/refinement facilities
- hospitals that use radioisotopes
- universities with radiological labs
- the oil and gas industry concerned with naturally-occurring radioactive material

Graduates may work in roles such as:

- contamination monitor
- radiation protection technician
- radiation surveyor



- health physics technician
- NORMs technician

## Employment

Graduates may find employment as contamination monitors, radiation protection technicians, radiation surveyors, health physics technicians, radiation safety officers, and NORMs technicians.

## **Learning Outcomes**

The graduate has reliably demonstrated the ability to:

- Operate radiation survey equipment to accurately monitor, detect and measure radiation fields and contamination.

- Interpret and follow radiation safety plans and procedures consistent with current research, regulations and industry standards.

- Anticipate and assess radiological and operational hazards in order to recommend and apply evidence-informed mitigation strategies and work planning for radiological protection and occupational safety.

- Respond to changing radiological conditions in accordance with regulatory requirements and industry standards and best practices.

- Apply industry standard communication and documentation practices to support effective and accurate communication of radiation hazards and safety information with a variety of stakeholders.

- Use industry standard, evidence-based models to assess the health risks attributed to internal and external radiological exposures.

- Resolve radiation protection issues through the application of scientific principles and practices to maintain or restore optimal safety for workers the public and the environment.

- Analyze industrial system designs and components to support the safe operations of reactors, reactor systems and licensed nuclear activities.

- Apply regulatory requirement and industry standard practices to ensure accurate function and operation of radiological detection and safety systems.

- Apply the principles of As Low As Reasonably Achievable (ALARA) to all work in accordance with established regulatory and industry radiation protection standards.

- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

Level: 01	Courses	Hours
DAT7669	Microcomputer Applications for Radiation Safety	28.0
GED7666	Human Performance	42.0
GEP1001	Cooperative Education and Job Readiness	21.0
MAT7709	Mathematics for Radiation Safety	56.0
SAF7603	Instrumentation I	42.0
SAF7605	Radiation Protection I	42.0

## **Program of Study**



SCI7615	Sciences for Understanding Radiation Theory	56.0
WKT7108	Preparation for Work	28.0
Level: 02	Courses	Hours
ENL7777	Communications I	42.0
GEP2001	Co-Op Job Search 1	21.0
PHY7016	Fundamentals of Physics	42.0
SAF7613	Instrumentation II	56.0
SAF7616	Contamination Control	56.0
SAF7620	Radiation Protection II	42.0
SCI7617	Science for the Nuclear Industry	56.0
Со-ор: 01	Courses	Hours
WKT7116	Co-Op Education Work Experience	0.0
Level: 03	Courses	Hours
ENL7676	Technical Communication	42.0
SAF7604	Radiological Regulations and Requirements	42.0
SAF7640	Reactor Chemistry	42.0
SAF7643	Nuclear Systems and Components	56.0
SAF7645	Industry Safety Certificates	56.0
Choose one from equivalencies:	Courses	Hours
GED1215	General Education Elective	42.0
Level: 04	Courses	Hours
SAF7617	Site Systems and Work Planning	42.0
SAF7618	Electrical Science and Systems	42.0
SAF7632	Radiological Sampling Methodology	42.0
SAF7642	Radiological Waste: Disposal, Storage and Decommissioning	42.0
SAF7644	Radiological Assessment and Scenarios	56.0
Choose one from equivalencies:	Courses	Hours
GED1215	General Education Elective	42.0

## Fees for the 2025/2026 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at <a href="https://www.algonquincollege.com/ro/pay/fee-estimator/">https://www.algonquincollege.com/ro/pay/fee-estimator/</a>



Further information on fees can be found by visiting the Registrar's Office website at <u>https://www.algonquincollege.com/ro/</u>

Fees are subject to change.

Additional program related expenses include:

- Books and supplies cost approximately \$1,000 for the program duration and can be purchased in the campus bookstore.

- In addition, students are required to have their own electronic device such as a hybrid tablet, which will cost \$600 to \$900.

- Students are also required to take 10 online Industry certificates with approximate cost of \$550 for all 10 industry certificates.

## Admission Requirements for the 2026/2027 Academic Year

## **College Eligibility**

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or mathematics courses at the Basic Level, or with Workplace or Open courses will be tested to determine their eligibility for admission; OR

- Academic and Career Entrance (ACE) certificate; OR
- General Educational Development (GED) certificate; OR

- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 will be charged.

#### **Program Eligibility**

- English, Grade 12 (ENG4C or equivalent) with a 60% or higher.
- Mathematics, Grade 12 (MAP4C equivalent) with a minimum grade of 65%.

- Physics, Grade 12 (SPH4C or equivalent) with a grade of 65% or higher OR Chemistry, Grade 11 or 12 with a grade of 65% or higher.

- Applicants with international transcripts must provide proof of the subject specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).

- IELTS-International English Language Testing Service (Academic) Overall band of 6.5 with a minimum of 6.0 in each band OR TOEFL-Internet-based (iBT)-overall 88, with a minimum of 22 in each component: Reading: 22; Listening: 22; Speaking: 22; Writing: 22; OR Duolingo English Test (DET) Overall 120, minimum of 120 in Literacy and no score below 105.

Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

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## **Application Information**

## APPLIED NUCLEAR SCIENCE AND RADIATION SAFETY Program Code 1215X03FPM

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

## https://www.ontariocolleges.ca/en

60 Corporate Court Guelph, Ontario N1G 5J3 1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at <a href="https://www.ontariocolleges.ca/en">https://www.ontariocolleges.ca/en</a>

Applications for Fall Term and Winter Term received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information: <u>https://algonquincollege.my.site.com/myac360/s/self-registration-page</u>

For further information on the admissions process, contact:

Registrar's Office Algonquin College in the Ottawa Valley 1 College Way Pembroke, ON K8A0C8 Local: 613-735-4700 Toll-free 1-800-565-4723 TTY: 1-866-620-3845 Fax: 613-735-4739 https://www.algonquincollege.com/pembroke/

## **Additional Information**

## **CO-OP INFORMATION:**

All applicants apply directly to the co-op version of this program through <u>https://www.ontariocolleges.ca/en</u> or our International Application Portal. Applicants not wishing to pursue the co-op version will have the opportunity to opt-out after being admitted to the program but prior to the first co-op work term.



Co-operative education (Co-op) allows students to integrate their classroom learning with a realworld experience through paid work terms. Two academic terms prior to the cooperative education work term, students are required to actively participate in and successfully complete the selfdirected co-op course, readiness activities and workshops.

Students must actively conduct a guided, self-directed job search and are responsible for securing approved program-related paid co-op employment. Students compete for co-op positions alongside students from Algonquin College and other Canadian and international colleges and universities. Algonquin College's Co-op Department provides assistance in developing co-op job opportunities and guides the overall process, but does not guarantee that a student will obtain employment in a co-op work term. Co-op students may be required to relocate to take part in the co-op employment opportunities available in their industry and must cover all associated expenses; e.g., travel, work permits, visa applications, accommodation and all other incurred expenses.

Co-op work terms are typically 14 weeks in duration and are completed during a term when students are not taking courses. For more information on your program's co-op level(s), visit the courses tab on your program's webpage.

International students enrolled in a co-op program are required by Immigration, Refugees and Citizenship Canada (IRCC) to have a valid Co-op/Internship Work Permit prior to commencing their work term. Without this document International students are not legally eligible to engage in work in Canada that is part of an academic program. The Co-op/Internship Work Permit does not authorize international students to work outside the requirements of their academic program.

For more information on co-op programs, the co-op work/study schedule, as well as general and program-specific co-op eligibility criteria, please visit https://www.algonguincollege.com/coop-career-centre/

For health and safety reasons, agencies may have restrictions on accepting pregnant women and women who are breastfeeding.

For details on study-work progressions for specific programs, please visit <u>https://www.algonquincollege.com/coop-career-centre/</u>

## **Prior Work Experience:**

Applicants with prior education or industry experience related Nuclear Science and/or Radiation Safety can apply for advanced placement (course credits) through the Algonquin College Office of Prior Learning Assessment and Recognition (PLAR). This Office utilizes assessment standards of the Canadian Association for Prior Learning Assessment (CAPLA). The requirements for PLAR course credits vary from a challenge exam to a complete portfolio relating experience and other training to the relevant Applied Nuclear Science and Radiation Safety Ontario College Diploma course learning objectives. PLAR course credits can be awarded for up to a maximum of 75% of program hours. See more at: https://www.algonquincollege.com/plar/

## **Advanced Standing:**

Graduates of the Radiation Safety Ontario College Certificate program within the last five years are eligible to apply for advanced standing for up to 13 courses. Please note that advanced standing towards the diploma may be granted for courses completed with minimum of 70% in the Radiation Safety Ontario College Certificate.

#### Industry-related certifications:

Students will be required to complete 10 certifications, by no later than April 30th of their last year of study, 6 of which are compulsory and 4 are based on student interest. All are taken from a master list of certifications which will approximately cost \$550 for all 10. If students have obtained certifications prior to entering the program and those certifications are valid, they will count towards the required 10.

## **Additional Notes:**

A Criminal Records Check (CRC) may be required by certain agencies. You are required to supply information for the facilities to complete their own CRC and security clearances. In some cases, you are responsible for obtaining a CRC from your local Police Department.

## **Course Descriptions**

## DAT7669 Microcomputer Applications for Radiation Safety

Competency using a variety of computer applications is an essential skill sought by employers. Topics covered include the use of email, word processing, Internet searching and presentation



software and the management of data using spreadsheets. The application of typical software used in radiation safety are also discussed and applied in depth.

Prerequisite(s): none Corerequisite(s):none

## **ENL7676 Technical Communication**

Effective communication is an essential skill in the field of applied nuclear science. Students develop technical communication skills, which include writing clear technical and other workplace documents; presenting technical information orally; locating, evaluating, and documenting technical information; interpreting and reframing workplace safety plans and processes; interpreting and creating effective visuals; interacting effectively with colleagues; and other communication skills that technicians require in today's applied nuclear science workplace.

Prerequisite(s): ENL7777 Corerequisite(s):none

## **ENL7777** Communications I

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none Corerequisite(s):none

## **GED1215 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science & Technology.

Prerequisite(s): none Corerequisite(s):none

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Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science & Technology.

Prerequisite(s): none Corerequisite(s):none

## **GED7666 Human Performance**

Understanding how humans perform is critical for the safe and efficient operation of industrial facilities as it is a systematic means to ensure that human error is minimized. The tools and processes used in the industry to help reduce the likelihood of human error are reviewed. Students practise effective three-way communication skills, the importance of conservative decision making, the phonetic alphabetic and other human performance tools. Students also engage in problem solving, group decision making and building group cohesiveness. Through group work and individual study, students rehearse the fundamentals of human performance and how to efficiently communicate, both verbally and in writing, so that the possibilities of human error and ambiguity are minimized.

Prerequisite(s): none Corerequisite(s):none



## **GEP1001** Cooperative Education and Job Readiness

Students are guided through a series of activities that prepare them to conduct a professional job search and succeed in the workplace. Through a detailed orientation students learn the cooperative education program policies and procedures related to searching and securing a work term opportunity. Students identify their strengths and transferable skills and participate in workshop-style sessions that focus on cover letter and resume development, interview techniques and job search strategies. Students learn how to navigate a web-based resource centre, which is used to post employment and cooperative education job opportunities. Students reflect on workplace success, ethics and responsibilities.

Prerequisite(s): none Corerequisite(s):none

## GEP2001 Co-Op Job Search 1

Students are guided through a self-directed co-op job search using Algonquin's web-based resource centre, HireAC, as well as independent resources. Students will access information on key job search processes, including Co-op and Career Centre job search procedures and how to declare a self-developed job that meets co-op guidelines. Students will apply and further develop their knowledge on networking, interview techniques and job search strategies to improve their chances of success in securing co-op employment through a competitive job search process. Additional support is provided through individual coaching and group sessions, including job application reviews, mock interviews and assistance for students experiencing unique employment challenges.

Prerequisite(s): none Corerequisite(s):none

## **MAT7709 Mathematics for Radiation Safety**

Radiation Protection Technicians need to perform and provide accurate calculations and assessments to protect the health and safety of themselves and work colleagues. Students develop essential math skills including scientific notation, basic equations, logarithms, geometry and graphing to solve fundamental math problems. Through group discussion and practical exercises, students use a variety of problem solving, research and math skills to find solutions for radiation protection related problems.

Prerequisite(s): none Corerequisite(s):none

## **PHY7016 Fundamentals of Physics**

A conceptual understanding of physics is necessary to understand instrumentation, nuclear systems, and nuclear sciences. Students qualitatively and quantitatively explore the topics of forces and motion, energy and simple machines, and hydraulic and pneumatic systems. The underlying physical concepts and principles are emphasized as students gain experience applying them to diverse practical systems.

Prerequisite(s): MAT7709 Corerequisite(s):none

## SAF7603 Instrumentation I

Radiation Protection Technicians require a firm understanding of radiation detection equipment. This ensures that Radiation Protection Technicians are able to assess dose and contamination levels to ensure a safe working environment. Students examine the operational principles and demonstrate competence with ionization chambers, proportional and Geiger counters, scintillation counters and dosimeters. For each type of instrument, students explore, among other aspects, technical and electronic design, operating techniques and calibration. Students select, analyze, and utilize information from a variety of sources to research the principles of operation for a variety of detectors. Students also utilize a systematic and practical approach to a variety of instruments used to detect and measure radiation to industry standards.



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Prerequisite(s): none Corerequisite(s):none

## SAF7604 Radiological Regulations and Requirements

The Nuclear Safety and Control Act provides the Canadian Nuclear Safety Commission (CNSC) with the authority to regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information in Canada. Radiation Protection staff working at a nuclear facility or with radiation in Canada must be aware of the legislation that governs the safety of staff, the public and the environment. Students examine the core CNSC acts, regulations, policies, standards and guides that are applicable to radiation protection and radiation safety officers. Students also investigate key components of the Occupational Health and Safety Act. Through individual and group efforts, students locate relevant legislation, as it applies to specific safety and radiological concerns, analyze and interpret the information to given circumstances which require effective technical communication.

Prerequisite(s): none Corerequisite(s):none

## **SAF7605** Radiation Protection I

Radiation Protection Technicians need to recognize the biological risks associated with radiation hazards and to be able to protect themselves and other workers against these hazards. Students examine how radiation interacts with the human body and explore the biological effects of radiation, including acute and chronic risk factors. Students investigate and evaluate dosage levels with reference to both natural background radiation and humanly produced sources of radiation. Through individual and group efforts, students apply a systematic approach to anticipate and assess biological risk based on current research and standards in order to ensure radiation doses are minimized. The operating principle of ALARA (As Low As Reasonably Achievable) is introduced along with its fundamental origins.

Prerequisite(s): none Corerequisite(s):none

## SAF7613 Instrumentation II

Radiation Safety Technicians need to accurately and efficiently perform radiation surveys for a variety of radiological hazards in order to ensure that there is a safe work environment for themselves and others working with or around radiological or nuclear materials. Students develop practical skills in determining the type and amount of radiation and/or contamination present on systems, people or surfaces. Students perform radiation surveys, fill out radiation logs, determine and apply appropriate tags and signage, and make decisions that reflect industry safety standards. Students work in teams in which they systematically anticipate and assess radiological hazards. Through accurate calculations, students validate and defend their assessments and communicate these findings both verbally and in writing.

Prerequisite(s): MAT7709 and SAF7603 Corerequisite(s):none

## **SAF7616** Contamination Control

Radiological contamination is one of the paramount hazards in the nuclear industry and requires specially trained personnel to identify, contain and control it, thus ensuring that radiation dose and cross-contamination are minimized. Students develop the practical skills and theoretical knowledge to protect themselves and others in a workplace containing radioactive contamination. Students explain the personnel movement and contamination control measures used in industry and use various radiation instruments, protective equipment, control at the source techniques and basic decontamination practices. Through group and individual work, students apply a programmatic approach to handling contamination. Students utilize a variety of skills to locate and analyze the source of contamination and decide how to best manage it in an industrial environment.

Prerequisite(s): SAF7605 Corerequisite(s):none



## SAF7617 Site Systems and Work Planning

Radiation Protection technicians require working knowledge of systems that may contain radiological hazards within a facility to ensure that they can protect themselves as well as other workers. Students explain the basic nuclear systems in a typical CANDU reactor, the various radiation hazards to anticipate from these systems and the factors that can cause these hazards to change. Students develop a radioactive work plan that includes practical ALARA applications to demonstrate their understanding of the overall radioactive work planning process.

Prerequisite(s): SAF7605 and SAF7643 Corerequisite(s):none

## SAF7618 Electrical Science and Systems

Identifying and understanding standard electrical theory is a fundamental requirement for thoroughly understanding radiation detection instrumentation, as well as the operation of a nuclear facility. Students examine the basic concepts associated with AC and DC current, explore the fundamental operating principles of electric circuit components and differentiate the multiple power sources that may be found in an industrial setting. Students systematically select and organize information from a variety of sources and utilize that information to illustrate electrical theory via the correct application of mathematics.

Prerequisite(s): none Corerequisite(s):none

#### SAF7620 Radiation Protection II

Radiation Protection students need to understand and apply fundamental ALARA (As Low as Reasonably Achievable) principles to protect workers. Students examine the elements of radiological assessments and learn how to apply mitigation measures to protect workers. Methods to pre-estimate dose along with industry dosimetry methods are applied to industrial scenarios. By selecting information from appropriate sources and analyzing that information, students find solutions to practical radiation protection related problems.

Prerequisite(s): MAT7709 and SAF7605 Corerequisite(s):none

## SAF7632 Radiological Sampling Methodology

Radiation Protection personnel need to perform numerous radiological measurements both inside and outside the facility. Technicians need to understand the purpose, process and specific methodology to sampling various materials for radiological contaminants, as well as environmental sampling for potential off-site releases. Students demonstrate the sampling methodologies for various liquids, solids and gasses both inside and outside the plant, as well as describe the various barriers that are used to mitigate effluent releases. Through group discussion and teamwork, students apply a systematic approach to extracting samples from various materials and the environment with the intent of anticipating and solving effluent problems.

Prerequisite(s): SAF7613 and SAF7616 Corerequisite(s):none

## SAF7640 Reactor Chemistry

Radiation Protection Technicians are responsible for radiological hazard assessments associated with reactor maintenance activities. Radiation Protection Technicians need to understand how radioactivity is controlled and contained within CANDU systems. Students identify CANDU systems that are important to plant safety and radiological containment. They also summarize basic water chemistry control fundamentals. Through the application of mathematics and information from a variety of sources, students work individually and in groups to effectively communicate and document information regarding CANDU safety systems and chemistry control fundaments for radiological related operations.



Prerequisite(s): MAT7709 and PHY7016 Corerequisite(s):none

## SAF7642 Radiological Waste: Disposal, Storage and Decommissioning

Radiation Protection Technicians are involved in the uranium fuel cycle as well as the generation of various forms of radiological waste. Radiation Protection Technicians need to be aware of the risks when handling waste as it is a growing aspect of the Canadian nuclear industry. Students investigate the uranium fuel cycle from the point of mining uranium ore to the long-term disposal strategies for burned uranium fuel. Students examine characterization of various forms of radiological waste, where it is generated and how it is treated and stored. Students analyze and evaluate relevant information and use a systematic approach to the categorization of radiological waste. Students need to clearly communicate information regarding the storage and disposal of radiological waste and the various waste forms that are generated from nuclear facilities.

Prerequisite(s): SAF7604 and SAF7605 and SAF7620 Corerequisite(s):none

## SAF7643 Nuclear Systems and Components

The understanding of various nuclear system components is critical for the assessment of radiological and industrial hazards in a nuclear facility. Nuclear systems are comprised of components, each of which can have industrial and radiological hazards. Students summarize the hazards associated with typical components and how to mitigate these hazards. Students also explain how these components function and their application within a system. Students analyze component and system diagrams in order to understand how the various components work together to perform a specified function. Students then summarize how each system functions in order to ensure that the reactor is running safely.

Prerequisite(s): none Corerequisite(s):none

## SAF7644 Radiological Assessment and Scenarios

Radiation Protection Technicians must efficiently and accurately assess radiological hazards to protect the health and safety of themselves, other nuclear workers and the public. Student develop and participate in mock scenarios to further develop their practical skills with regards to identifying radiological hazards, as well as executing mitigation strategies and full plans for these hazards. Students develop and participate in project-based practical scenarios, which refine their systematic approach to radiological assessment and work planning and enhance their use of time and communication.

Prerequisite(s): SAF7613 and SAF7617 Corerequisite(s):none

## SAF7645 Industry Safety Certificates

Nuclear workers require a firm understanding of industrial safety fundamentals to ensure their own safety as well as the safety of others. Students have the opportunity to gain a minimum of 10 certifications in various preferred specialties. Possible certifications include Transportation of Dangerous Goods, Confined Space Training, Working at Heights Training, and Lock out Tag Out Training. Through computer-based and face-to-face training, students obtain certifications which will enhance their understanding of safety in an industrial environment.

Prerequisite(s): none Corerequisite(s):none

## SCI7615 Sciences for Understanding Radiation Theory

Scientific concepts form the foundation on which nuclear and radiation principles are developed and applied. Students are introduced to the historical development of our understanding of ionizing radiation. Students learn the theory behind the chemistry, physics and nuclear reactions leading to the understanding of radiation and nuclear reactor operations.



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Prerequisite(s): none Corerequisite(s):none

#### SCI7617 Science for the Nuclear Industry

Radiation Protection Technicians must categorize the fundamentals of science attributed to the operations systems within a nuclear facility. Students apply the principles behind fluid dynamics, material science and the corrosion characteristics of materials used in a nuclear facility. Through analysis of information from a variety of sources, students use problem solving skills and mathematical models to anticipate and solve problems related to nuclear plant operations science fundamentals.

Prerequisite(s): SCI7615 Corerequisite(s):none

#### WKT7108 Preparation for Work

Graduates entering the field of Radiation Protection and Nuclear Operations encounter behavioural based interviews as well as aptitude testing which may have not been encountered with previous employers. Students write resumes and cover letters in a professional manner, perform systematic job searches, watch and practise behavioural-based interviews, and are exposed to the aptitude testing process. Through behavioural-based interviews, aptitude testing and reflection, students engage in professional communication, both individually and as part of a group.

Prerequisite(s): none Corerequisite(s):none

#### WKT7116 Co-Op Education Work Experience

For students who qualify academically, there is an opportunity to enhance their diploma with an officially recognized co-op designation. This designation is achieved by successfully completing a paid co-op educational employment experience. This experience gives students the opportunity to gain valuable work experience, network, make contacts in the industry and assess their skills and weaknesses in a real work environment. Students must have completed all course requirements before entering this course.

Prerequisite(s): none Corerequisite(s):none