

FIRE PROTECTION ENGINEERING TECHNOLOGY (FPT)

About the Program

Are you interested in a career that allows you to make an impact in your community and is always in high demand? In the Fire Protection Engineering Technology three-year advanced diploma program, you will experience hands-on learning within fire protection labs, witness live fire demonstrations, perform fire investigations and hazardous materials operation scenarios and learn the foundations of the fire protection industry. You will also benefit from flexible learning options and a comprehensive curriculum taught by expert faculty that prepares you for an array of career opportunities. This uniquely designed program provides you with the professional knowledge and practical skills to work in the fire service field or dynamic careers within the private sector of the fire protection and life safety industry.

Graduates of the program have the option to transfer into the Firefighter, Pre-Service Education and Training (<https://www.senecapolytechnic.ca/programs/fulltime/FFP.html>) program or other programs in the School of Fire Protection Engineering Technology (<https://www.senecapolytechnic.ca/school/fire-protection-engineering-technology.html>). This three-year advanced diploma is a preferred qualification for firefighter applications in Ontario and prepares you for a diverse array of careers.

In providing a real-world experience, indoor and outdoor lab-based subjects will require the use of appropriate industry health and safety equipment and personal protective equipment (PPE).

Computer Requirements

It is strongly recommended that you have a laptop before the first day of this program. It should include the following minimum technical specifications:

- Windows 10 Operating System
- Intel i7 or equivalent processor
- 16 GB of RAM (32 GB of RAM is recommended)
- 256 GB Solid State Hard Drive (SSD) (512 GB SSD is recommended)
- High-end graphics video card (consider a dedicated video card with at least 2 GB of video memory)
- 13-inch or larger screen
- Three USB 3.0 ports
- Wireless 802.11ac

Credential Awarded

Ontario College Advanced Diploma

Duration

6 Semesters (3 Years)

Starts

January, September

Program and Course Delivery

This program is offered in Seneca's hybrid delivery format with some courses available in Seneca's flexible delivery format. Some coursework is online and some must be completed in person. Students will need to come on campus to complete in-person learning requirements. For courses offered in the flexible delivery format, professors use innovative learning spaces and technology to teach students in a classroom or lab and broadcast in real time to students attending remotely. In flexible courses, students have the choice of coming on campus or learning online.

Skills

Throughout this program you will develop the following skills:

- Perform advanced fire inspections of various occupancies to determine life safety compliance
- Perform fundamental fire investigation tasks to determine potential cause and origin
- Recognize fire and life safety risks for building owners and determine solutions
- Analyze advanced fire dynamics concepts
- Evaluate building construction and fire safety systems to confirm compliance with building and fire codes
- Design advanced fire alarm and sprinkler systems
- Troubleshoot fire alarm and sprinkler systems

Optional Co-op

This program offers the option to complete a co-op work term, providing valuable hands-on experience in your field of study.

Students who select the co-op stream will have the opportunity to participate in a co-op term(s) if eligibility requirements are maintained. Students will have the flexibility to transfer to the non co-op stream at any time. The co-op term(s) is typically a full-time paid position completed between two academic semesters. The co-op search is student-driven and participation in the co-op stream does not guarantee that a work position will be secured. However, students will receive guidance and support through in-class career workshops and one-on-one coaching to help prepare for the co-op term.

Review eligibility requirements for work-integrated learning (<https://www.senecapolytechnic.ca/employers/seneca-works/work-integrated-learning/eligibility.html>)

Your Career

When you graduate from this program, these are the types of career options you can explore:

Fire Service

- Fire and life safety public educator
- Fire investigator
- Fire prevention inspector/officer
- Firefighter (preferred qualification)
- Plans examiner

Fire Engineering Technology

- Fire sprinkler system (designer or sales representative)
- Fire alarm system (designer, technician or sales representative)
- Fire and building code consultant (engineering technologist)

- Property management, fire prevention
- Insurance risk manager
- Fire safety plan designer
- Fire researcher
- Fire extinguisher technician
- CAD designer

Professional Certification

- NFPA 1072 Hazardous Materials Awareness & Operations (IFSAC and ProBoard)
- NFPA 1031 Fire Inspector Level I (IFSAC and ProBoard)
- NFPA 1031 Fire Inspector Level II (IFSAC and ProBoard)
- NFPA 1035 Public Educator Level I (IFSAC and ProBoard)
- NFPA 1033 Fire Investigator (prep)
- Canadian Fire Alarm Association (CFAA) recognition and course equivalencies
- BCIN General Legal (MMAH) (exam prep)
- BCIN Fire Protection (MMAH) (exam prep)

Affiliations/Associations

- Canadian Fire Alarm Association (CFAA)
- National Fire Protection Association (NFPA)
- Office of the Ontario Fire Marshall (OFM)

Program of Study

Course Code	Course Name	Weekly Hours
Semester 1		
ALG191	Fire Analytics I	6
COM101	Communicating Across Contexts	3
or COM111	Communicating Across Contexts (Enriched)	
FPF190	Fire Protection Fundamentals	3
FSS190	Fire Sprinkler Systems - Applied I	5
OBC190	Building Construction and The Effects of Fire	4
Semester 2		
CAD290	Computer Aided Design I	4
FAS290	Electricity and Electronics for Fire Systems	6
FSS290	Fire Sprinkler Systems - Applied II	5
MTH290	Fire Analytics II	4
OFC395	Ontario Fire Code - General	4
plus: General Education Course (1)		3
Semester 3		
AFS390	Alternative Fire Suppression Systems	4
CAD390	Computer-Aided Design II	3
FAS390	Fire Alarm Systems - Design	5
FWS390	Fire Protection Water Supplies	4
OBC395	Ontario Building Code - Fire Protection I	3
plus: General Education Course (1)		3
Semester 4		
FDY493	Fire Dynamics I - Heat Transfer	4

FSS390	Fire Sprinkler Systems - Design I	4
HOM390	NFPA 1072 Operations - Hazardous Materials	4
OBC495	Ontario Building Code - Legal	2
OFC590	Ontario Fire Code - Part IX Retrofit	3
TEC400	Technical Communications	3
WTP100	Work Term Preparation *	1
plus: General Education Course (1)		3
Work-Integrated Learning Term		
FPT331	Fire Protection Engineering Technology, Co-op *	30
Semester 5		
CFI693	NFPA 1031 - Level I Fire Inspector	3
FDY593	Fire Dynamics - Advanced Principles	4
FSS490	Fire Sprinkler System - Design II	4
OFC690	Ontario Fire Code - FPPA Inspections, Legal and Courtroom Procedures	3
Specialization Courses (2)		6
Semester 6		
FFI693	Fundamentals of Fire Investigation	3
FLS590	NFPA 1035 Level I - Fire and Life Safety Educator	3
FSS590	Fire Sprinkler Systems - Design III	4
HBF693	Human Behaviour During Fire Emergencies	3
Specialization Courses (2)		6

Fire Protection Systems specialization only

Semester 5

Course Code	Course Name	Weekly Hours
CAD490	Computer Aided Design III - Revit	3
STK593	Stocklisting and Materials Management	3

Semester 6

Course Code	Course Name	Weekly Hours
FAS490	Fire Alarm Systems - Troubleshooting	3
FSS690	Fire Sprinkler Systems - Design IV	3

Fire Service specialization only

Semester 5

Course Code	Course Name	Weekly Hours
FPP693	Fire Prevention Officer Career Preparation	3
OFC490	Ontario Fire Code - Part IV Flammable and Combustible Liquids	3

Semester 6

Course Code	Course Name	Weekly Hours
CFI793	NFPA 1031 Level II - Fire Inspector	3
OFC790	Ontario Fire Code - Parts III and V Industrial and Hazardous Applications	3

Insurance/Consulting specialization only

Semester 5

Course Code	Course Name	Weekly Hours
INS590	Insurance - Intro to Insurance Industry	3
PRM693	Project Management	3

Semester 6

Course Code	Course Name	Weekly Hours
INS690	Insurance - Risk Management	3
OBC590	Ontario Building Code - Fire Protection II	3

* Work-Integrated Learning option only

Program Learning Outcomes

This Seneca program has been validated by the Credential Validation Service as an Ontario College Credential as required by the Ministry of Colleges and Universities.

As a graduate, you will be prepared to reliably demonstrate the ability to:

- Communicate orally, and in comprehensive reports, the results of fire protection designs, code interpretations and analysis to a client or an authority having jurisdiction.
- Test and commission suppression and fire detection systems to verify system performance.
- Determine the appropriate fire protection requirements by categorizing buildings by construction type, fire safety hazards and intended usage to ensure adequate life safety.
- Design suppression and fire detection systems to meet applicable codes and standards.
- Troubleshoot issues with fire protection systems for the purpose of returning the system to working order.
- Verify risk to life and property from hazardous materials and likely fires to provide acceptable alternative solutions to the prescriptive Code requirements.

- Evaluate proposed plans, designs and alternative solutions, for all building types, to meet the intent of the applicable Codes and standards.
- Assess the acceptability of the proposed design by predicting human behaviour during fire evacuation.

Admission Requirements

- Ontario Secondary School Diploma (OSSD), or equivalent, or a mature applicant (<https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/mature-applicants.html>)
- English: Grade 12 C or U, or equivalent course
- Mathematics: Grade 12 C or U, or Grade 11 Functions (MCR3U), or equivalent course

Canadian citizens and permanent residents may satisfy the English and/or mathematics requirements for this program through successful Seneca pre-admission testing. (<https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/mature-applicants.html>)

Recommended upgrading for applicants who do not meet academic subject requirements (<https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/upgrading-options.html>).

International Student Information

International admissions requirements vary by program and in addition to English requirements (<https://www.senecapolytechnic.ca/international/apply/how-to-apply/admission-requirements/english-requirements.html>), programs may require credits in mathematics, biology, and chemistry at a level equivalent to Ontario's curriculum, or a postsecondary degree or diploma, equivalent to an Ontario university or college. Program-specific pre-requisite courses and credentials are listed with the admission requirements on each program page. To review the academic requirements please visit: Academic Requirements - Seneca, Toronto, Canada ([senecapolytechnic.ca](https://www.senecapolytechnic.ca)) (<https://www.senecapolytechnic.ca/international/apply/how-to-apply/admission-requirements/academic-requirements.html>).

Pathways

As a leader in academic pathways, we offer a range of options that will allow you to take your credential further in another Seneca program or a program at a partner institution.

To learn more about your eligibility, visit the Academic Pathways (<https://www.senecapolytechnic.ca/pathways.html>) web page.

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