Seneca POLYTECHNIC

2024-2025

CIVIL ENGINEERING TECHNOLOGY (CVT)

About the Program

If you are dreaming of participating in the design and creation of the built environment, then this program is for you. In this three-year advanced diploma program, you will study principles of highway, municipal and building design, geotechniques, soil mechanics, building code and develop skills in materials testing and surveying. You will also learn to use many computer software packages such as AutoCAD, MicroSurvey, Civil 3D, ArcGIS and other advanced software packages specific to specializations in building, municipal or transportation. By the end of your program you will work independently and in teams on capstone projects and technical reports which will reflect the culmination of several skills acquired by you during the program.

As a student of this program, you must achieve a minimum grade of “C” (60 per cent) in the Strength of Materials (http://apps.senecacollege.ca/ssos/findOutline.do?subjectCode=STM241&_gl=1*qhawpc*_ga*NDc4Njc3NTE5LjE2OTk4OTQ0NTQ.*_ga_NKW0CZ0EK5*MTcwMDI2NDUyMi4xMy4xLjE3MDAyMzI2ODUuNy4wLjA.) course.

The Civil Engineering Technology (CVT) program provides practical, hands-on experiential learning. In providing a real-world experience, indoor and outdoor lab-based subjects will require the use of appropriate industry health & safety equipment and personal protective equipment (PPE). There are also expectations of having to do some heavy lifting of equipment and materials and well as having to navigate outdoor terrain and conditions.

Laptop Requirement

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

- Highway design
- Municipal and building design
- Building code
- Surveying
- Soils and materials testing

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 co-op work 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

Graduates of the program can explore the following career options:

- Civil engineering technologist
- AutoCAD technologist
- Survey technologist
- Soils/materials laboratory technologist
- Designer
- Project co-ordinator
- Contract administrator
- Project manager
- Construction inspector
- Land development technologist
- Site supervisor
- Site superintendant
- Quality control technician
- Quantity surveyor
- Estimator

Program of Study

Course Code	Course Name	Weekly Hours
Semester 1		
BEA101	CAD Fundamentals	4
COM101	Communicating Across Contexts	3

or COM111	Communicating Across Contexts (Enriched)	
ENS141	Engineering Problems and Statics	4
EVS141	Environmental Science	3
MTA100	Mathematics 100	5
Semester 2		
CRX342	Civil CAD Drafting II	3
IPS255	Interpersonal Skills in the Engineering Workplace	3
MTA002	Mathematics II	4
MTR241	Materials	5
STM241	Strength of Materials	4
SVC001	Surveying I	4
Semester 3		
GIS443	Geographic Information Systems	4
GTQ342	Geotechniques	5
MTA443	Calculus and Statistics	4
SDS443	Structural Design - Steel (B)	5
SVC002	Surveying II	4
TEC400	Technical Communications	3
WTP100	Work Term Preparation *	1
Work-Integrated Learning Term 1		
CVT331	Civil Engineering Technology, Co-op *	30
Semester 4		
HDY443	Hydraulics and Hydrology	5
HWT443	Highway Technology	5
SMF443	Soil Mechanics and Foundations	5
SRC343	Structural Design - Concrete	4
plus: General Education Course (2)		6
Work-Integrated Learning Term 2		
CVT332	Civil Engineering Technology, Co-op II *	30
Semester 5		
BLC543	Building Code	5
BSC543	Building Science Technology	4
ETR591	Engineering Technical Report I	2
MPT543	Municipal Technology	5
PLR643	Planning	4
TRN543	Traffic Engineering Technology	4
Building specialization only		
BIM543	Building Information Modeling	4
Municipal specialization only		
CDA543	Civil Design Application	4
Semester 6		
CMG543	Construction Management	4
ETR592	Engineering Technical Report II	2
MTA643	Advanced Math	4
plus: Professional Options (1)		4-5
Building specialization only		
BUD643	Building Design	5
STW543	Structural Design - Wood	4
Municipal specialization only		
MED643	Municipal Environmental Design	5
WMC643	Water Management Control	4

Professional Options

Course Code	Course Name	Weekly Hours
BEN655	Building Envelope Systems	4
CDM643	Concrete Detailing Modeling	4
EPP655	Engineering and Public Policy	4
PPE655	Engineering Ethics and Professional Practice	5
RBE643	Rehabilitating the Built Environment	4

* 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:

- develop and use strategies to enhance professional growth and ongoing learning in the civil engineering field.
- comply with workplace health and safety practices and procedures in accordance with current legislation and regulations.
- complete duties and monitor that work is performed in compliance with contractual obligations, applicable laws, standards, bylaws, codes and ethical practices in the civil engineering field.
- promote and carry out sustainable practices* in accordance with contract documents, industry standards and environmental legislative requirements.
- facilitate the collaboration and interaction among the project team and project stakeholders* to support civil engineering projects*.
- collect, process, analyze and coordinate technical data to produce written and graphical project-related documents.
- use industry-specific electronic and digital technologies to support civil engineering projects*.
- participate in the design and modelling phase of civil engineering projects* by applying engineering concepts, technical mathematics* and principles of science to the review, production and/or modification of project plans.
- contribute to the scheduling and coordination and cost estimation of civil engineering projects* and monitor their progression by applying principles of construction project management.
- coordinate and perform quality control* testing and evaluate equipment, materials and methods used in the implementation and completion of civil engineering projects*.
- apply teamwork, leadership, supervision and interpersonal skills when working individually or within multidisciplinary teams to complete civil engineering projects*.

Civil Engineering Technology Program Standard (https://client-snap.dev8.leepfrog.com/senecacollege-ca/external.html?link=http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/techno/civ_eng_technology_61003rev_e.pdf)

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/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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