

CIVIL ENGINEERING TECHNOLOGY

Program: CVTY

Credential: Ontario College Advanced Diploma, Co-op

Delivery: Full-time

Work Integrated Learning: 2 Co-op Work Terms

Length: 6 Semesters, plus 2 work terms

Duration: 3 Years

Effective: Fall 2019

Location: Barrie

Description

Students in this program prepare for success in the rapidly evolving and growing industry of civil engineering. Students are exposed to the construction of roads, bridges, sewers, water mains, and other infrastructure; are introduced to cost estimation; and experience field work, material testing, and project management. The application of codes and standards, site management techniques, and related computer technologies to integrated work placements prepares students to work with engineers, designers, and construction project managers as an integral part of the engineering team.

Career Opportunities

Graduates may find work in the private sector as quantity surveyors (estimators), purchasers, site supervisors and project managers, drafters, or designers using computer aided Design (CAD) technology. They may also find employment as assistants in engineering offices. Public sector employment in a variety of government agencies, including municipal building inspection/code enforcement are employment options for graduates.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. assemble, analyse, and appropriately apply civil engineering data from existing graphics, reports, and other documents;
2. coordinate and facilitate the collection, processing, and interpretation of technical data related to civil engineering projects;
3. communicate information effectively and accurately by analysing, translating, and producing civil engineering documents;
4. monitor that all work is completed in compliance with the rights and conditions of contractual obligations; applicable law, standards, bylaws, and codes; and the accepted principles and practices of civil engineering;
5. schedule and coordinate civil engineering projects and monitor the quality and quantity of work;
6. assist in planning, designing, inspecting, supervising, and constructing civil engineering projects;
7. evaluate the methods employed and the use of equipment and materials involved in the implementation and completion of civil engineering projects;
8. use electronic technology to support civil engineering projects;
9. apply the principles of mathematics and science to analyze and solve technical problems related to civil engineering projects;

10. manage and maintain systems for civil engineering project records, logs, and inventories;
11. assist in the assessment of the political, social, and environmental impacts of civil engineering projects;
12. take into account the interdependence of the architectural, structural, mechanical, and electrical disciplines relating to civil engineering projects;
13. facilitate liaison among the project stakeholders involved in the design and implementation of civil engineering projects;
14. develop and use personal and professional strategies and plans to enhance professional growth and competence;
15. apply basic entrepreneurial strategies to identify and respond to new opportunities.

Practical Experience

Co-operative Education is a mandatory component of all Co-op programs at Georgian College; it has been designed as a process by which students integrate their academic education with work experience related to their programs of study. This integration affects much more than simply earning a salary, including the adjustment to the work environment and the development of professionalism. It also reinforces skills and theory learned during academic semesters, develops professional contacts, job knowledge and career path, improves human relations and communication skills, and promotes personal maturity and financial independence.

Students are requested to register, attend and participate in their scheduled co-operative education classes. These classes are scheduled for all first year students and are expected to be completed in order for students to proceed successfully to their first co-op work experiences. To ensure students are eligible to proceed onto any co-op work experience, students should refer to Promotional Status and Eligibility for Co-op as outlined in the College Calendar. Co-op policies and procedures can be located on our website:
www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/ (<http://www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/>)

Georgian College follows the Co-operative Education guidelines set out by the Canadian Association for Co-operative Education (CAFCE) and Education at Work Ontario (EWO) by supporting the learning outcomes designed for the program specific graduate profile and curriculum as set out by the Ministry of Advanced Education and Skills Development.

External Recognition

This program is accredited by the Canadian Association for Co-operative Education (CAFCE). This accreditation represents the highest standard of achievement for co-operative education programs in Canada, and recognizes Georgian's commitment to quality in co-op education.

The Program Progression:

Fall Intake

- **Sem 1:** Fall 2019
- **Sem 2:** Winter 2020
- **Work Term 1:** Summer 2020
- **Sem 3:** Fall 2020
- **Sem 4:** Winter 2021

- **Work Term 2-dbl:** Summer 2021 - Fall 2021
- **Sem 5:** Winter 2022
- **Sem 6:** Summer 2022

Articulation

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at <http://www.georgiancollege.ca/admissions/credit-transfer/>

Admission Requirements

OSSD or equivalent with

- Grade 12 English (C or U)
- Grade 12 Mathematics (C or U)

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: www.georgiancollege.ca/admissions/policies-procedures/ (<http://www.georgiancollege.ca/admissions/policies-procedures/>)

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit Transfer Centre website for details: www.georgiancollege.ca/admissions/credit-transfer/ (<http://www.georgiancollege.ca/admissions/credit-transfer/>)

Graduation Requirements

- 33 Program Courses
- 2 Communications Courses
- 3 General Education Courses
- 2 Co-op Work Terms

Graduation Eligibility

To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Program Tracking

Semester 1	Hours
Program Courses	
CIVL 1002 Physics for Civil Engineering	42
COMP 1056 Civil Engineering Graphics	42
CONS 1003 Construction Practices	42
MATH 1028 Mathematics for Constructions	42
SURV 1001 Civil / Construction Surveying	42
Communications Course	
Select 1 course from the communications list during registration.	42
Hours	252

Semester 2

Program Courses		Hours
CIVL 1001	Quantity Estimation and Drawing Review	42
COMP 1057	CAD / Civil Construction	42
CONS 1004	Construction Practices and Design: Material Testing	42
MENG 2003	Statics	42
SURV 1003	Civil/Construction Surveying 2	21
Communications Course		
Select 1 course from the communications list during registration.		42
General Education Course		
Select 1 course from the general education list during registration.		42
Hours		273

Semester 3

Program Courses		Hours
CIVL 2001	Geotechnical Analysis and Geosynthetics	42
CONS 2000	Construction Practices: Methods	42
CONS 2003	Construction Practices and Design: Municipal and Provincial Codes and Standards	42
MENG 2007	Strength of Materials	42
MGMT 2002	Project Management	42
General Education Course		
Select 1 course from the general education list during registration.		42
Hours		252

Semester 4

Program Courses		Hours
CIVL 2002	Stormwater Management / Best Management Practices	21
COMP 2124	Introduction to 3D Drafting	42
CONS 2001	Construction Practices: Building Systems	42
CONS 2004	Construction Practices: Highways	42
CONS 2008	Site Development	42
SURV 2003	Introduction to GIS and Geospatial Technology	42
General Education Course		
Select 1 course from the general education list during registration.		42
Hours		273

Semester 5

Program Courses		Hours
CIVL 3000	Heavy Construction Estimating: Computer Applications	42
CONS 3000	Structural Analysis - Beams and Columns	42
CONS 3007	Construction Practices: Structural Steel	42
CONS 3012	Numerical Analysis	42
MGMT 3013	Project Management for Civil Construction	42
SURV 3001	Advanced GIS and New Technologies for Civil	42
Hours		252

Semester 6

Program Courses		Hours
CIVL 3001	Estimating: Cost Analysis	42
COMP 3032	3D CAD Civil / Construction	42
CONS 3006	Construction Practices: Reinforced Concrete	42
CONS 3013	Construction Practices and Design: Highways 2	42
MGMT 3014	Contract Law and Ethics	42
TECR 3009	Technical Project: Civil	42
Hours		252
Total Hours		1554

Co-op Work Terms

Co-op Work Terms		Hours
COOP 1028	Civil Engineering Work Term 1 (occurs after Semester 2)	560
COOP 2023	Civil Technology Work Term 2-3 (occurs after Semesters 4 and 5)	1120
Hours		1680
Total Hours		1680

Graduation Window

Students unable to adhere to the program duration of three years (as stated above) may take a maximum of six years to complete their credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.