

# CIVIL ENGINEERING TECHNOLOGY

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**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 2022

**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. develop and use strategies to enhance professional growth and ongoing learning in the civil engineering field;
2. comply with workplace health and safety practices and procedures in accordance with current legislation and regulations;
3. 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;
4. promote and carry out sustainable practices in accordance with contract documents, industry standards and environmental legislative requirements;
5. facilitate the collaboration and interaction among the project team and project stakeholders to support civil engineering projects;
6. collect, process, analyze and coordinate technical data to produce written and graphical project-related documents;
7. use industry-specific electronic and digital technologies to support civil engineering projects;

8. participate in the design and modeling 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;

9. contribute to the scheduling and coordination and cost estimation of civil engineering projects and monitor their progression by applying principles of construction project management;

10. coordinate and perform quality control testing and evaluate equipment, materials and methods used in the implementation and completion of civil engineering projects;

11. apply teamwork, leadership, supervision and interpersonal skills when working individually or within multidisciplinary teams to complete civil engineering projects.

## Practical Experience

All co-operative education programs at Georgian contain mandatory work term experiences aligned with program learning outcomes. Co-op work terms are designed to integrate academic learning with work experience, supporting the development of industry specific competencies and employability skills.

Georgian College holds membership with, and endeavours to follow, the co-operative education guidelines set out by the Co-operative Education and Work Integrated Learning Canada (CEWIL) and Experiential and Work-Integrated Ontario (EWO) as supported by the Ministry of Colleges and Universities.

Co-op is facilitated as a supported, competitive job search process. Students are required to complete a Co-op and Career Preparation course scheduled prior to their first co-op work term. Students engage in an active co-op job search that includes applying to positions posted by Co-op Consultants, and personal networking. Co-op work terms are scheduled according to a formal sequence that alternates academic and co-op semesters as shown in the program progression below.

Programs may have additional requirements such as a valid driver's license, strong communication skills, industry specific certifications, and ability to travel. Under exceptional circumstances, a student may be unable to complete the program progression as shown below. Please refer to Georgian College Academic Regulation 3.2.7: *Changes in program, course, section or co-op*, for details.

International co-op work terms are supported and encouraged, when aligned with program requirements.

Further information on co-op services can be found at [www.GeorgianCollege.ca/co-op](http://www.GeorgianCollege.ca/co-op) (<http://www.georgiancollege.ca/co-op/>)

## 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.

## Program Progression:

The following reflects the planned progression for full-time offerings of the program.

## Fall Intake

- **Sem 1:** Fall 2022
- **Sem 2:** Winter 2023
- **Work Term 1:** Summer 2023
- **Sem 3:** Fall 2023
- **Sem 4:** Winter 2024
- **Work Term 2-dbl:** Summer 2024 - Fall 2024
- **Sem 5:** Winter 2025
- **Sem 6:** Summer 2025

## 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/academic-regulations/](http://www.georgiancollege.ca/admissions/academic-regulations/) (<http://www.georgiancollege.ca/admissions/academic-regulations/>)

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/) (<http://www.georgiancollege.ca/admissions/credit-transfer/>)

## Additional Information

Applicants are strongly recommended to have a minimum of their G2 license by the end of their 2nd semester for successful co-op placement.

A basic understanding of computer use for Word documents, emails, and accessing the internet is expected.

## 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

The following reflects the planned course sequence for full-time offerings of the Fall intake of the program. Where more than one intake is offered contact the program co-ordinator for the 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
<b>Hours</b>		<b>252</b>

Semester 2		Hours
Program Courses		
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
<b>Hours</b>		<b>273</b>

Semester 3		Hours
Program Courses		
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
SURV 2003	Introduction to GIS and Geospatial Technology	42
General Education Course		
Select 1 course from the general education list during registration.		42
<b>Hours</b>		<b>252</b>

Semester 4		Hours
Program Courses		
CIVL 2001	Geotechnical Analysis and Geosynthetics	42
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
General Education Course		
Select 1 course from the general education list during registration.		42
<b>Hours</b>		<b>273</b>

Semester 5		Hours
Program Courses		
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
<b>Hours</b>		<b>252</b>

**Semester 6**

<b>Program Courses</b>		
COMP 3032	3D CAD Civil / Construction	42
CONS 3006	Construction Practices: Reinforced Concrete	42
CONS 3013	Construction Practices and Design: Highways 2	42
MATH 3001	Calculus for Civil Engineering	42
MGMT 3014	Contract Law and Ethics	42
TECR 3009	Technical Project: Civil	42
<b>Hours</b>		<b>252</b>
<b>Total Hours</b>		<b>1554</b>

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

## 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.

**Disclaimer:** *The information in this document 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.*

*Program outlines may be subject to change in response to emerging situations, in order to facilitate student achievement of the learning outcomes required for graduation. Components such as courses, progression, coop work terms, placements, internships and other requirements may be delivered differently than published.*