

# MECHANICAL ENGINEERING TECHNOLOGY

**Program:** METY

**Credential:** Ontario College Advanced Diploma, Co-op

**Delivery:** Full-time

**Work Integrated Learning:** 3 Co-op Work Terms

**Length:** 6 Semesters, plus 3 work terms

**Duration:** 3 Years

**Effective:** Fall 2023, Winter 2024

**Location:** Barrie

## Description

Mechanical technology is a cornerstone of sophisticated and advanced economies. Students learn the skills to apply scientific and engineering principles to solve mechanical engineering related problems. They also undertake the design and fabrication of mechanical apparatus and systems, including automation and control systems, manufacturing processes and material handling.

## Career Opportunities

Graduates may find a range of occupations in many industrial sectors including automotive, aerospace, advanced automation, natural resources and processing. They may participate in an engineer-technologist-technician team in mechanical consulting, manufacturing or mechanical design and maintenance. Careers are possible in machine and fixture building, manufacturing and production, quality assurance, testing, manufacturing management, technical sales and service. Specific industries may include automotive parts and assembly, metal fabricating and machining, and machine building.

## Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. monitor compliance with current legislation, standards, regulations and guidelines;
2. plan, co-ordinate, implement and evaluate quality control and quality assurance procedures to meet organizational standards and requirements;
3. monitor and encourage compliance with current health and safety legislation, as well as organizational practices and procedures;
4. develop and apply sustainability best practices in workplaces;
5. use current and emerging technologies to implement mechanical engineering projects;
6. analyze and solve complex mechanical problems by applying mathematics and fundamentals of mechanical engineering;
7. prepare, analyze, evaluate and modify mechanical engineering drawings and other related technical documents;
8. design and analyze mechanical components, processes and systems by applying fundamentals of mechanical engineering;
9. design, manufacture and maintain mechanical components according to required specifications;
10. establish and verify the specifications of materials, processes and operations for the design and production of mechanical components;

11. plan, implement and evaluate projects by applying project management principles;
12. develop strategies for ongoing personal and professional development to enhance work performance;
13. apply business principles to design and engineering practices;
14. apply basic entrepreneurial strategies to identify and respond to new opportunities.

## 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 Regulations 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) (<https://www.georgiancollege.ca/co-op/>)

## Program Progression

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

### Fall Intake

- **Sem 1:** Fall 2023
- **Sem 2:** Winter 2024
- **Work Term 1:** Summer 2024
- **Sem 3:** Fall 2024
- **Sem 4:** Winter 2025
- **Sem 5:** Summer 2025
- **Work Term 2:** Fall 2025
- **Work Term 3:** Winter 2026
- **Sem 6:** Summer 2026

## Winter Intake

- **Sem 1:** Winter 2024
- **Sem 2:** Summer 2024
- **Sem 3:** Fall 2024
- **Sem 4:** Winter 2025
- **Sem 5:** Summer 2025
- **Work Term 1:** Fall 2025
- **Work Term 2:** Winter 2026
- **Sem 6:** Summer 2026
- **Work Term 3:** Fall 2026

## Admission Requirements

OSSD or equivalent with

- Grade 12 English (C or U)
- any 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/) (<https://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 for Prior Learning website for details: [www.georgiancollege.ca/admissions/credit-transfer/](http://www.georgiancollege.ca/admissions/credit-transfer/) (<https://www.georgiancollege.ca/admissions/credit-transfer/>)

## Additional Information

Students should hold, or obtain, a minimum Class G2 Ontario driver's license to ensure the greatest opportunity for co-op work terms.

## Graduation Requirements

- 34 Program Courses
- 2 Communications Courses
- 1 Program Option Course
- 3 General Education Courses
- 3 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	
COMP 1084 Computer Aided Design 1 For Mechanical Engineering Technology	56

ENVR 1000 Environmental Science and Sustainability	42
MATH 1018 Introduction to Technical Mathematics	42
MCHN 1001 Machine Shop	70
MENG 1019 Manufacturing Processes	42
Communications Course	
Select 1 course from the communications list during registration.	42

**Hours 294**

### Semester 2

Program Courses	
COMP 1025 Computer Aided Design 2 for Mechanical Engineering Technology	42
COMP 2043 Computers and Programmable Controllers	42
MATH 1019 Technical Mathematics	42
MENG 1008 Engineering Materials	42
PHYS 1007 Engineering Physics	42
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 294**

### Semester 3

Program Courses	
COMP 2120 Computer Aided Design 3 for Mechanical Engineering Technology	42
MATH 2008 Calculus and Engineering Mathematics	56
MENG 2003 Statics	42
MENG 2004 Workplace Design and Industrial Ergonomics	42
MENG 2005 Fluid Mechanics	42
MGMT 2002 Project Management	42
General Education Course	
Select 1 course from the general education list during registration.	42

**Hours 308**

### Semester 4

Program Courses	
COMP 2121 Computer Aided Engineering (CAE)	42
MATH 2003 Statistical Analysis - SPC	42
MCHN 2001 Engineering Tooling	42
MENG 2007 Strength of Materials	42
MENG 2019 Thermodynamics	56
MENG 3011 Dynamics	42
General Education Course	
Select 1 course from the general education list during registration.	42

**Hours 308**

### Semester 5

Program Courses	
COMP 1085 Computer Aided Manufacturing	42
MENG 3006 Instrumentation and Controls	42
MENG 3007 Design of Energy Systems	42
MENG 3010 Machine Design	42
MENG 3020 Advanced Materials	42
MENG 3021 Quality and Reliability	42
ROBT 2000 Introduction to Robotics	42

**Hours 294**

### Semester 6

Program Courses	
BUSI 3008 Economics, Ethics and Entrepreneurship	42
MENG 3022 Facilities Design and Production Control	42
MENG 3023 Vibrations	42
MENG 3024 Mechatronics	42
TDIE 2000 Hydraulics and Pneumatics	42
Program Option Courses	

Select 1 course from the available list during registration.	42
<b>Hours</b>	<b>252</b>
<b>Total Hours</b>	<b>1750</b>

Co-op Work Terms		Hours
COOP 1043	Mechanical Work Term 1 (Fall Intake occurs after Semester 2, Winter Intake occurs after Semester 5)	560
COOP 2035	Mechanical Work Term 2 (Fall Intake occurs after Semester 5, Winter Intake occurs after Work Term 1)	560
COOP 3013	Mechanical Work Term 3 (Fall Intake occurs after Work Term 2, Winter Intake occurs after Semester 6)	560
<b>Hours</b>		<b>1680</b>
<b>Total Hours</b>		<b>1680</b>

Code	Title
<b>Program options may include:</b>	
ENGN 3000	Engineering Project
REAS 3002	Applied Research Project

## 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.*