

# ELECTROMECHANICAL ENGINEERING TECHNICIAN - MECHATRONICS

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**Program:** METT

**Credential:** Ontario College Diploma, co-op

**Delivery:** Full-time

**Work Integrated Learning:** 1 Co-op Work Term

**Length:** 4 Semesters, plus 1 work term

**Duration:** 2 Years

**Effective:** Fall 2025, Winter 2026

**Location:** Barrie

## Description

The Electromechanical Engineering Technician two-year diploma is a comprehensive program designed to equip you with the relevant practical skills and theoretical knowledge to be successful in the field of electromechanical engineering. Program courses integrate aspects of electrical, mechanical, and computer engineering to provide a balanced curriculum that prepares you for a wide range of technical roles across industries within manufacturing, automation, robotics, instrumentation, hydraulics, pneumatics, industrial maintenance, and fabrication.

The program curriculum emphasizes a balance between applied, hands-on learning and classroom theory in our well-equipped and modern labs, including opportunities to develop in-demand skills such as computer-aided design (CAD) and computer-aided manufacturing (CAM). Your learning is combined with workplace experience through a four-month co-op work term that connects you to industry contacts and develops networks for future employment.

On completion of the program, you may also choose to continue your studies in the third year of the Electromechanical Engineering Technology - Mechatronics program.

## Career Opportunities

A mechatronics graduate functions as a highly skilled technician in the electromechanical engineering field. Graduates find work in a wide range of domestic and international industries such as transportation (automotive, heavy equipment, and aerospace fields) and manufacturing (automation, robotics, consumer product development). Industry tasks may include the design, build, and fabrication of automated systems, troubleshooting, maintenance, repairs, programming, robotics, networking, smart manufacturing, and application support.

## Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. fabricate and build electrical, electronic, and mechanical components and assemblies in accordance with operating standards, job requirements, and specifications;
2. interpret and produce electrical, electronic, and mechanical drawings and other related technical documents and graphics for a variety of stakeholders in compliance with industry standards;

3. select and use a variety of troubleshooting techniques and equipment to assess, maintain, and repair electromechanical circuits, equipment, processes, systems, and subsystems;
4. maintain and repair electrical, electronic, and mechanical components, equipment, and systems to ensure that they function according to specifications and to optimize production;
5. support the design and production of mechanical components by assisting in the specification of manufacturing materials and processes;
6. apply, analyze, build, install, commission, and troubleshoot a variety of mechanical, electrical, and electronic control systems, logic and digital circuits, passive AC and DC circuits, and active circuits;
7. install and troubleshoot basic computer hardware and programming to support the electromechanical engineering environment;
8. maintain and troubleshoot automated equipment including robotic systems;
9. establish and maintain inventory, records, and documentation systems to meet organizational and industry standards and requirements;
10. select and purchase electromechanical equipment, components, and systems that fulfill job requirements and functional specifications;
11. assist in applying quality control and quality assurance program procedures to meet organizational standards and requirements;
12. work in compliance with relevant industry standards, laws and regulations, codes, policies, and procedures;
13. develop strategies for ongoing personal and professional development to enhance work performance and to remain current in the field and responsive to emergent technologies and national and international standards;
14. contribute as an individual and a member of an electromechanical engineering team to the effective completion of tasks and projects;
15. support project management activities such as planning, implementation and evaluation of projects, and monitoring of resources, timelines, and expenditures as required;
16. design, simulate, install, and troubleshoot smart connected electromechanical systems, using networking and computer technologies;
17. implement sustainable strategies that promote efficiencies and reduce the impact of mechatronics systems on the environment.

## 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](https://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 2025
- **Sem 2:** Winter 2026
- **Work Term 1:** Summer 2026
- **Sem 3:** Fall 2026
- **Sem 4:** Winter 2027

### Winter Intake

- **Sem 1:** Winter 2026
- **Sem 2:** Summer 2026
- **Work Term 1:** Fall 2026
- **Sem 3:** Winter 2027
- **Sem 4:** Summer 2027

## Admission Requirements

- Ontario Secondary School Diploma (OSSD) or equivalent, or mature student status
- 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/](https://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/](https://www.georgiancollege.ca/admissions/credit-transfer/) (<https://www.georgiancollege.ca/admissions/credit-transfer/>)

## Graduation Requirements

- 21 Program Courses
- 2 Communications Courses
- 3 General Education Courses
- 1 Co-op Work Term

### 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 1107	Principles of Programming	42
COMP 1120	Engineering Drawing and Design 1	56
MATH 1047	Applied Engineering Math	42
METR 1000	Electrical Components	56
METR 1001	Introduction to Mechatronics Systems and Reliability	56
Communications Course		
Select 1 course from the Communications list during registration		42
<b>Hours</b>		<b>294</b>

Semester 2		Hours
Program Courses		
COMP 2135	Engineering Drawing and Design 2	56
MATH 1048	Applied Calculus	42
METR 1002	Fluid Power Control Systems	56
METR 1003	Digital Fundamentals and Programmable Logic Controllers	56
METR 1004	Fundamentals of Electronic Systems in Mechatronics	42
METR 1005	Fundamentals of AC Circuits	56
General Education Course		
Select 1 course from the General Education list during registration		42
<b>Hours</b>		<b>350</b>

Semester 3		Hours
Program Courses		
COMP 2149	Design for Manufacturing and Assembly	56
COMP 3031	Networking	42
ELEC 3010	Advanced Programmable Logic Controllers	56
MENG 2024	Applied Engineering Mechanics	42
METR 2000	Industrial Control System	56
METR 3000	Motor Control	56
Communications Course		
Select 1 course from the Communications list during registration		42
<b>Hours</b>		<b>350</b>

Semester 4		Hours
Program Courses		
COMP 2123	Introduction to Microprocessors	42
MENG 2025	Applied Mechanics of Materials	56
METR 2003	Applied Computer Aided Manufacturing	56
ROBT 2000	Introduction to Robotics	42
General Education Course		

Select 1 course from the General Education list during registration	42
General Education Course	
Select 1 course from the General Education list during registration	42
<b>Hours</b>	<b>280</b>
<b>Total Hours</b>	<b>1274</b>
<b>Co-op Work Term</b>	<b>Hours</b>
COOP 1056      Mechatronics Work Term 1	560
<b>Hours</b>	<b>560</b>
<b>Total Hours</b>	<b>560</b>

## Graduation Window

Students unable to adhere to the program duration of two years (as stated above) may take a maximum of four 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.*