

MECHANICAL TECHNICIAN - PRECISION TOOLING, MACHINING, AND CNC

Program: MTPPT

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 2027

Location: Barrie

Description

In this program, you'll be provided with opportunities to acquire precision skills that are in high demand within the advanced manufacturing sector. You'll learn to safely set-up and operate conventional machine tools and other complex machining equipment, such as CNC lathes, mills and accessories. Additionally, you'll develop the knowledge and skills to manufacture components, assist with design of jigs and fixtures, tools, moulds and dies, and perform troubleshooting to enact repairs on production tooling. Through experiential learning opportunities, you'll use accurate measuring and testing methods to ensure precision in a variety of manufactured components.

Career Opportunities

This program prepares the graduate for the Aerospace, Energy, Mining, and Automotive industries, along with advanced manufacturing facilities. Career path options include CNC Programmers, CNC Set-Up Technicians, Tool and Die Makers, Mould Makers, Millwrights and General Machinists, as well as many other precision manufacturing opportunities. As employees, responsibilities may include design, custom production, maintenance and troubleshooting of complex tooling, moulds, dies and/or related tooling. Demand in Canada for individuals with excellent precision skills is typically high.

Graduates are eligible for exemption from the Level 1 in-school training requirements for Precision Machining and Tooling apprenticeship curriculum, including:

- General Machinist 429A
- Tool and Die Maker 430A
- Mould Maker 431A
- Pattern Maker 443A
- Machine Tool Builder and Integrator 430M
- Tool/Tooling Maker 630T

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. complete all work in compliance with relevant legislation, standards, regulations and safety guidelines in mechanical and manufacturing environments;

2. apply relevant quality control and quality assurance procedures to ensure compliance with organizational and industry standards and requirements;
3. adhere to health and safety practices and procedures to promote a safe work environment for themselves and others;
4. use current and emerging technologies to support the implementation of mechanical projects and the integration of control systems in the workplace;
5. analyze and solve mechanical problems to enhance system performance, efficiency, and sustainability across mechanical, manufacturing, and mechatronics systems;
6. interpret, prepare and modify design technical data and documentation—including drawings and specifications—to communicate design intent and requirements to production teams and other invested parties;
7. perform and record technical measurements accurately to meet industry specifications for effective mechanical system operation and compliance;
8. manufacture, assemble, maintain and repair mechanical and associated components according to required specifications;
9. contribute to the planning, implementation and evaluation of assembled, industrial projects to meet timelines and deliverables;
10. set up, operate, and monitor precision tooling and machining equipment to achieve specified tolerances and surface finishes according to engineering requirements;
11. verify and optimize CNC machining processes to produce components that meet specified engineering standards.

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, Universities Research Excellence and Security.

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 on the internal job posting site and external job posting sites, accessing their personal network, researching companies of interest, preparing targeted and customized resumes and cover letters, participating in interviews, and using professional communication strategies with employers.

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

External Recognition

This program is accredited by Co-operative Education and Work-Integrated Learning Canada (CEWIL Canada).

Program Progression

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

Fall Intake

- **Sem 1:** Fall 2027
- **Sem 2:** Winter 2028
- **Work Term:** Summer 2028
- **Sem 3:** Fall 2028
- **Sem 4:** Winter 2029

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

Admission Requirements

- Ontario Secondary School Diploma (OSSD) or equivalent, or mature student status
- Grade 12 English (C or U)
- any Grade 11¹ or 12 Mathematics (C, M, or U)

¹ Minimum of 60% in Grade 11 College or University level Mathematics (MBF3C or MCF3M)

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/>)

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/>)

Bring Your Own Device (BYOD) requirements

All Georgian College students are required to bring their own device (BYOD) (<https://georgiancollege.ca/byod/>) that meets the technology requirements (<https://georgiancollege.ca/byod/>) for their program. Having access to a personal laptop that meets your program's technical requirements will ensure you're prepared for in-class, online and hybrid learning activities. Students are responsible for the cost, software installation, maintenance and repair of their device.

Graduation Requirements

- 16 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			
CNCT 1013	CNC Applications 1		56
COMP 1131	Introduction to Engineering Drawings and Computer-Aided Design (CAD)		42
MATH 1055	Mathematics for Mechanical Technician		28
TDIE 1001	Basic Machine Tool Application		112
TDIE 1013	Basic Machine Tool Theory		42
Communications Course			
COMM 1016	Communication Essentials		42
Hours			322
Semester 2			
Program Courses			
CNCT 1012	CAD CAM Design 1		42
CNCT 1014	CNC Applications 2		56
TDIE 1014	Advanced Machine Tool Applications		126
TDIE 1016	Advanced Machine Tool Theory		42
Communications Course			
Select 1 course from the Communications list during registration.			42
Hours			308
Semester 3			
Program Courses			
CNCT 1005	CNC Process and Fixture Technology		28
CNCT 2009	CAD CAM Design 2		42
TDIE 2010	Basic Tool Making Theory		42
TDIE 2011	Basic Tool Making Applications		154
General Education Course			
Select 1 course from the General Education list during registration.			42
Hours			308
Semester 4			
Program Courses			
CNCT 2011	CNC Manufacturing (Design and Applications)		154

TDIE 2008	Advanced Tool Making Theory	42
TDIE 2012	Integration of Manufacturing Processes	42
General Education Courses		
Select two 42 hour courses from the General Education list during registration.		84
Hours		322
Total Hours		1260
Co-op Work Term		Hours
COOP 1057	Mechanical Technician - Precision Tooling, Machining, and CNC Work Term 1	560
Hours		560
Total Hours		560

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.