

# ARCHITECTURAL TECHNICIAN

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## Program Outline

<b>Major:</b>	ARTC
<b>Length:</b>	2 Years
<b>Delivery:</b>	4 Semesters, plus 2 work terms
<b>Credential:</b>	Ontario College Diploma, Co-op
<b>Effective:</b>	2016-2017
<b>Location:</b>	Barrie
<b>Start:</b>	Fall (Barrie)

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### Description

This two-year program, with 4 semesters and 2 co-op work experiences, prepares students to work alongside architects, designers and project managers. While developing skills in architectural drafting and design as well as an understanding of the building design and construction process, students take courses in computer-aided drafting and project design, building codes, contracts and specifications. Teamwork and project-based learning is emphasized. This program is common with the first four semesters of the Architectural Technology program and graduates may choose to continue into the third year of that program.

### Career Opportunities

Graduates find work in the private sector as architectural and civil draftspersons, working in the teams that prepare design or working drawings. They may also find careers as sales representatives and technicians in building products manufacturing firms and in government departments. They may also find employment as assistants in architectural construction field offices.

### Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- communicate with clients, contractors, other building professionals, and approval authorities;

- assist in the preparation, reading, and interpretation of drawings, and other graphical representations used in building projects;
- read and assist in the preparation of specifications and other project documents used in design and construction;
- assist in the preparation of estimates of time, costs, and quantity;
- assist in solving technical problems related to building projects through the application of principles of building science and mathematics;
- collaborate with members of the building team;
- assist in the development of architectural designs;
- review and assist in the preparation of site planning documents;
- comply with the legal and ethical requirements of an architectural technician in the practice of building design and construction;
- assist in the assessment of buildings related to repurposing and renovation projects;
- ensure personal safety in the workplace;
- identify sustainable design and building practices;
- use current and emerging technology to support building projects;
- assist in the administration of the construction phase of building projects;
- 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 Training, Colleges and Universities.

### **The Program Progression:**

Fall Intake - Barrie

Sem 1	Sem 2	Work Term 1	Sem 3	Work Term 2	Sem 4
Fall 2016	Winter 2017	Summer 2017	Fall 2017	Winter 2018	Summer 2018

### **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:**

27 Mandatory 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.

**Mandatory Courses**

ACCT3006 Construction Accounting  
ARCH1000 Architectural Design - Fundamentals  
ARCH1001 Quantity Surveying 1  
ARCH1002 Architectural Design - Residential  
ARCH1003 Quantity Surveying 2  
ARCH1005 Architectural Drafting 1  
ARCH1006 Architectural Drafting 2  
ARCH1007 Drawing for Architecture  
ARCH2000 Architectural Design - Commercial  
ARCH2002 Architectural Codes and Standards 1  
ARCH2004 Architectural Drafting 3  
ARCH2005 Architectural Codes and Standards 2  
ARCH2006 Sustainable Design  
ARCH2007 Architectural CAD  
BLDG2000 Ontario Building Code and Provincial Standards  
CONS1005 Construction Technology: Structures  
CONS1006 Construction Technology: Interiors  
CONS2005 Construction Technology: Building Envelope  
CONS2006 Building and Materials Reuse  
CONS2007 Site Planning and Landscape  
ENVR1008 Architecture and the Environment  
MATH1028 Mathematics for Constructions  
MENG2016 Statics  
MENG2017 Strength of Materials  
MGMT1002 Productivity Tools  
MGMT2025 Project Management  
SURV1002 Surveying

**Communications Courses**

To be selected at time of registration from the College list, as determined by testing.

General Education Courses  
To be selected from College list

Co-op Work Terms  
COOP1013 Technology Work Term 1  
COOP2009 Technology Work Term 2

**Course Descriptions:**

ACCT3006 Construction Accounting 42.0 Hours

This course provides an introduction to accounting and its applications in the construction industry. Included are financial statement presentations and preparations of the required entries.

ARCH1000 Architectural Design - Fundamentals 42.0 Hours

This course addresses architectural design and the theory supporting this activity. Its purpose is to convey the principles, logic and dependencies of the design process between project inception and completion. The course presents also the specific representations used in architectural design and various techniques for design presentation at different project development stages.

ARCH1001 Quantity Surveying 1 42.0 Hours

This course presents the role of estimating in architecture and the construction industry, a review of the various types of estimates used within the industry and an overview of the responsibilities involved. Information presented in this course provides students with the skills necessary to define an estimate recognizing the standards of the industry. Material take off procedures will be demonstrated and applied using examples based on various construction materials and processes.

ARCH1002 Architectural Design - Residential 42.0 Hours

Architectural and structural design related to residential programs is covered in this course. The student develops designs and learns to recognize and interpret a designer's intent. The student also develops knowledge of construction components, basic building code requirements, and local by-laws.

P- ARCH1000 Architectural Design - Fundamentals

ARCH1003 Quantity Surveying 2 42.0 Hours

Presented in this course are the fundamentals of quantity surveying, employing methodology from the Canadian Institute of Quantity Surveyors, (CIQS) Method of Measurement and Industry Practice. Material take off procedures will be demonstrated and applied using examples from wood framed structures.

P- ARCH1001 Quantity Surveying 1

#### ARCH1005 Architectural Drafting 1 42.0 Hours

This course introduces the student to computer applications used in architectural design. This first level CAD course provides support to other design related courses where computerized drafting is required for completing specific assignments.

#### ARCH1006 Architectural Drafting 2 42.0 Hours

This course builds upon the basic computer drafting techniques introduced in the previous level. Additional exposure to Computer Assisted Design promotes productiveness and accuracy within the design process through the use of intermediate drafting technique.

P- ARCH1005 Architectural Drafting 1

#### ARCH1007 Drawing for Architecture 42.0 Hours

This course is preparing the students to learn, practice and improve their skills in sketching, free-hand drawing and basic rendering, as these are important channels of visual communications in the industry.

#### ARCH2000 Architectural Design - Commercial 42.0 Hours

In this course, students will design a medium sized commercial building using non-combustible materials. Logical progressive steps and specific design requirements will result in a complete set of construction drawings that fulfills most of the requirements of the client.

P- ARCH1000 Architectural Design - Fundamentals

#### ARCH2002 Architectural Codes and Standards 1 42.0 Hours

This course starts with a basic overview of the current set-up, structure, content and application of the requirements of Ontario Building Code using both Volumes 1 and Volume 2 to assist the user with the knowledge of the necessity of the current requirements. The focus of this course will be on the current Building Code requirements dealing with houses specifically on Part 9.

#### ARCH2004 Architectural Drafting 3 42.0 Hours

This course builds upon the computer drafting skills acquired in previous levels. Advanced techniques in Computer Assisted Design will be presented for efficient and accurate representation of design projects.

P- ARCH1005 Architectural Drafting 1

#### ARCH2005 Architectural Codes and Standards 2 42.0 Hours

This course covers the advanced sections in Part 9 of the Ontario Building Code and other Parts of the OBC that are referenced in Part 9, including Parts 3 and Part 4, that apply to houses and small buildings. This course is also based on the Small Building requirements to prepare for the BCIN qualification exams in that category as required by the Building and Development Branch of the Ministry of Municipal Affairs and Housing.

P- ARCH2002 Architectural Codes and Standards 1

ARCH2006 Sustainable Design 42.0 Hours

This course elaborates the fundamental principles of sustainability in architectural design, discussing about materials, processes and technologies that can provide a more sustainable life of the architectural product.

ARCH2007 Architectural CAD 42.0 Hours

This course is the venue for the transition from two-dimensional drafting to three-dimensional modeling in architectural design. The concepts of modeling and simulations are presented as well.

P- ARCH2004 Architectural Drafting 3

BLDG2000 Ontario Building Code and Provincial Standards 42.0 Hours

This course provides advanced knowledge of the object, structure, contents and application of Part 3 of the Ontario Building Code, (O.B.C.), specifically as it pertains to large buildings. Also included is exposure to the infrastructure standards and requirements of the Ontario Provincial standards and to the standards writing organizations in Canada and internationally as they impact building design and construction.

CONS1005 Construction Technology: Structures 42.0 Hours

This course studies the typical solutions, materials and methods commonly used in architectural design for structural elements and systems. Students will independently research on various topics related to structural materials.

CONS1006 Construction Technology: Interiors 42.0 Hours

This course elaborates on the architectural solutions and construction materials and processes used to design and build the interior of a building. Students will independently research on various topics related to interiors materials.

CONS2005 Construction Technology: Building Envelope 42.0 Hours

The course covers construction materials and systems used to enclose a building. Constructive solutions, details, applications and examples are included in this subject. Students will independently research on various topics related to building envelope materials.

CONS2006 Building and Materials Reuse 42.0 Hours

The course elaborates on the options, methods and processes used to preserve, remodel, re-purpose or decommission a building. Students will be introduced to the analysis process required for LEED compliance.

CONS2007 Site Planning and Landscape 42.0 Hours

This course introduces the students to zoning, municipal standards and site planning. Site grading, hard surfaces, landscaping, and drainage will also be investigated.

**COOP1013 Technology Work Term 1 640.0 Hours**

Co-operative Education will provide students with the skills to conduct a college directed and self directed job search in their chosen field of study. Students will obtain a co-op work experience with an employer for a period of 14 weeks. All students are responsible to submit a work term report indicating achievement of specific learning outcomes during their 1st co-op work term. 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 each program.

**COOP2009 Technology Work Term 2 560.0 Hours**

Co-operative Education will allow students to gain new/enhanced technical work experience. As students begin to recognize their chosen academic strengths and career direction, they will be better prepared to choose their academic courses and professional options. All students are responsible for submitting a work term report and employer evaluation form following this work term. It is expected that a student wishing to return to their Work Term 1 employer, be asked to seek new/more in depth responsibilities so that enhancement of program specific learning outcomes be achieved.

P- COOP1013 Technology Work Term 1

**ENVR1008 Architecture and the Environment 42.0 Hours**

The course presents criteria for an environmental design, relationships between the environment and buildings, the construction processes and materials, the operating aspects and the options for the end-of-life of a structure.

**MATH1028 Mathematics for Constructions 42.0 Hours**

This course provides a foundation in mathematics subjects related to architectural and construction applications. Students will develop skills in mathematical thinking and problem solving, by employing the use of algebra, trigonometry and two- and three-dimensional geometry.

**MENG2016 Statics 42.0 Hours**

This course is an introduction to the equilibrium of externally applied forces and internally developed reaction forces as applied to construction structures.

**MENG2017 Strength of Materials 42.0 Hours**

This course is designed to familiarize the student with some basic concepts of strength of materials, particularly direct stress and strain, bending and torsional stresses.

P- MENG2016 Statics



**MGMT1002 Productivity Tools 42.0 Hours**

This course introduces strategies, methods and tools for analyzing, organizing, and presenting information in a business environment. Students will learn about research methods, data processing, document editing, time management and presentation techniques required for an efficient professional performance.

**MGMT2025 Project Management 42.0 Hours**

This course introduces the fundamental principles necessary for successful management of projects. Project planning, management and control techniques will be discussed and the application of computers in project management will be studied.

**SURV1002 Surveying 42.0 Hours**

This is an introductory course to the principles of surveying as related to the construction industry. Emphasis is placed on obtaining field skills in linear measurement and the operation of levels, transits, theodolites and electronic surveying equipment. Basic traverse computation and other office calculations that use the collected field data are practiced.

**Course Description Legend**

P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

*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.*