GEORGIAN COLLEGE

# ARCHITECTURAL TECHNICIAN

## Program Outline

**Major:** ARTC
**Length:** 2 Years
**Delivery**: 4 Semesters, plus 2 work terms
**Credential:** Ontario College Diploma, Co-op
**Effective:** 2013-2014
**Location:** Barrie
**Start:** Fall (Barrie)

### 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.

**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 program 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 to proceed successfully to their first co-op work experience. 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.georgianc.on.ca/careers/for-students/

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 2013 | Winter 2014 | Summer 2014 | Fall 2014 | Winter 2015 | Summer 2015 |

**Admission Requirements:**

You must meet ONE of the following requirements to be eligible for admission to these programs:

Secondary school applicants:

- OSS Curriculum: OSSD or equivalent with Grade 12 English (C) or (U) (ENG 4C, ENG 4U); plus any Grade 12 College Mathematics (MAP 4C or MCT 4C), or any Grade 12 U University Mathematics. Also recommended: Grade 12 College or Grade 11 or 12 University Physics (SPH4C, SPH4U, SPH3U) or Grade 12 College or Grade 11 or 12 University Chemistry (SCH4C, SCH4U, SCH3U); Grade 11 or 12 College or University Technological Design (TDJ3M, TDJ4M); Grade 11 or 12 College Manufacturing Engineering Technology (TMJ3C, TMJ4C)

Non-Secondary school applicants (19 years or older):

- Any credit Communication course and most credit mathematics courses taken at Georgian College
- College preparatory programs including those taken at Georgian College: Technology Foundation and Technology Fundamentals*
- Equivalent courses in English and mathematics taken through secondary school or Independent Learning Centres (at the general, advanced, college or university level)
- Academic and Career Entrance Certificate (ACE) program with communications and business, apprentice or technical mathematics*
- Mature student testing in English and mathematics that meets the minimum standards for admission (available through most testing services)*
- Ontario High School Equivalency Certificate (GED)
- English, Literature or Communication credit courses and most mathematics credit courses from accredited colleges/universities

Home school applicants:

- Applicants can write the mature student testing in English and mathematics that meets the minimum standards for admission (available through testing services)*

* available from Georgian College. For a complete listing please contact the Office of the Registrar.

Non-secondary school applicants who are 19 years of age or over by the first day of classes, and who lack the academic entrance qualifications, may be considered for entrance to an appropriate post-secondary diploma or certificate program as mature applicants. Mature applicants must meet all program specific prerequisites including all selection criteria; equivalencies are stated above. Applicants who are unsure whether they meet admission requirements should contact the Office of the Registrar. In addition, those applying as mature students and having no documentation of Grade 12 education must supply, if required, proof of age, such as a copy of an official birth certificate or driver's licence. Refer to Section 2.5 and 2.6 of the Academic Calendar for further details.

Credit transfer and course exemptions:
Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may be eligible for credit transfer/course exemptions. Courses/experience must match at least 80% of the learning outcomes of a Georgian College course with a minimum grade of 60% or C achieved in previous coursework; some program exceptions apply (see program outline). For further information please visit the Credit Transfer Centre website: georgiancollege.ca/admissions/credit-transfer/

**Graduation Requirements:**
19 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.

Mandatory Courses
ARCH1000 Architectural Design - Fundamentals
ARCH1001 Quantity Surveying 1
ARCH1002 Architectural Design - Residential
ARCH1003 Quantity Surveying 2
ARCH2000 Archtectural Design Commercial

ARCH2001 Architectural Materials
ARCH2002 Architectural Codes and Standards 1
ARCH2003 History of Architecture
BLDG2000 Ontario Building Code and Provincial Standards
CONS2000 Construction Practices:Methods
CONS2001 Construction Practices: Building Systems
CONS2002 Site Development and Drainage
ENVR1000 Environmental Science and Sustainability
MATH1018 Introduction to Technical Mathematics
MATH1019 Technical Mathematics
MENG2003 Statics
MENG2007 Strength of Materials
MGMT2002 Project Management
SURV1000 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:**
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 provides an overview of the role of estimating in architecture and the construction industry and a review of the various types of estimates used within the industry. Information presented in this course provides students with the skills necessary to define a complete/good estimate recognizing the standards of the industry.

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. Take off procedures will be demonstrated and applied using examples from wood framed structures, concrete foundations, and simple grading exercises.
P- ARCH1001 Quantity Surveying 1

ARCH2000 Archtectural Design Commercial 42.0 Hours
In this course students will design a medium sized commercial building. Logical progressive steps, including the preparation of the many required free hand sketches, will result in a complete set of construction drawings that fulfils most of the requirements of the client.
P- ARCH1002 Architectural Design - Residential

ARCH2001 Architectural Materials 42.0 Hours
This course will familiarize students with the properties of materials used in architectural construction and site development, including soils. Focus will include residential and non-residential construction, consideration of construction and trades sequencing as well as the critical documentation of materials relating to building design and construction.

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.

ARCH2003 History of Architecture 42.0 Hours
This course provides students with an introduction to the field of architecture, the history of the profession in Canada and the development of the current practices in Ontario. This course also provides an overview of the role of architects, engineers, trades and the general field of design.

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.

CONS2000 Construction Practices:Methods 42.0 Hours
A study of materials and methods commonly used or seen in construction associated with architecture and infrastructure development are the basis for this course. Also included are common calculations and contract specifications for various types of projects.

CONS2001 Construction Practices: Building Systems 42.0 Hours
This course consists of advanced construction theory topics for architecture and design projects. Emphasis is placed on refinement of building design, materials and construction details. The course integrates architectural drawing standards, acceptable construction detailing principles, building code requirements and building systems.
P- CONS2000 Construction Practices:Methods

CONS2002 Site Development and Drainage 42.0 Hours
This course focuses on the design and installation of municipal services. The main topics are piping materials, sewer and water main appurtenances, and loads (both structural and hydraulic) on storm and sanitary drainage systems.

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 or P- FLD4201 Co-Op Work Term 1 (4 Mths)

ENVR1000 Environmental Science and Sustainability 42.0 Hours
This course focuses on ecological principles, population dynamics and energy resources in order to assess their impact on the environment. The major types of pollution are examined and their effects on the various components of the ecosphere analyzed. Strategies for pollution control and the conservation of the Earth's resources are examined in the context of economic considerations and sustainable development.

MATH1018 Introduction to Technical Mathematics 42.0 Hours
This course provides a foundation in mathematics in engineering technology and related programs. Students will develop skill in mathematical thinking and problem solving, and appropriately apply technology in the solution of engineering related problems using algebra, geometry, right angle trigonometry, trigonometric functions of any angle, systems of linear equations, and exponential and logarithmic functions. Additional time to strengthen and reinforce mathematical competencies will be made available to those students who require it.

MATH1019 Technical Mathematics 42.0 Hours
This course extends the mathematics ideas taught in Introduction to Technical Mathematics through advanced mathematics problems needed for mechanical engineering programs. Mathematical reasoning and problem solving will be reinforced through problems in an engineering context. Mathematics concepts reinforced and extended are algebra, systems of linear equations, vectors and oblique triangles, graphs of trigonometric functions, and complex numbers.
P- MATH1018 Introduction to Technical Mathematics

MENG2003 Statics 42.0 Hours
This course is an introduction to the equilibrium of externally applied forces and internally developed reaction forces as applied to engineering structures and machines.

MENG2007 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- MENG2003 Statics or P- EML4113 Statics or P- MENG2011 Statics and Dynamics or P- EML4237 Statics And Dynamics

MGMT2002 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.

SURV1000 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.*