

Area of Interest: Construction and Skilled Trades

## Architectural Technician (Co-op and Non Co-op Version)

Ontario College Diploma

Program Code: 0188X03FWO

2 Years

Ottawa Campus

### Our Program

#### **Build your architectural career within the construction industry.**

The two-year Architectural Technician Ontario College Diploma program teaches you the skills and techniques to enter a career in the architecture and construction fields.

Your professors are industry professionals who provide you with a learning experience from the construction industry and the architectural profession, enabling you to be successful in your academic and professional ventures.

Begin the program with a focus on residential construction, and progress to studying commercial construction. Develop skills related to all facets of building construction, including design and technical resolution with the integration of building and material detailing.

As a student in this program, you have the opportunity to study a variety of practical topics, using both applied and theoretical learning, and a project-based, integrated studies approach. Courses include:

- Working Drawings
- Methods and Materials of Construction
- Codes and Standards
- AutoCAD
- Revit
- Visual Communications
- Design
- Environmental Systems

Students also have the option to gain real-world experience through a paid co-operative education (co-op) work term (see Additional Information for more details). Please note that places in the co-op work term are subject to availability and academic eligibility. Please note admission to the co-op program does not guarantee a co-op placement.

On completion of this two-year program, you have the opportunity to further your education at Algonquin College by:

- completing the Architectural Technology Ontario College Advanced Diploma program as a third-year option
- applying to the Green Architecture Ontario College Graduate Certificate program
- applying to the Building Information Modeling - Lifecycle Management (BIM-LM) Ontario College Graduate Certificate program
- applying for advanced standing in the Bachelor of Building Science Degree program.

Graduates often work:

- in architects` offices
- with contractors in multiple sectors
- in engineering offices
- as a building materials sales representative
- with municipal offices such as the City of Ottawa
- with federal and provincial agencies dealing with construction
- in a drafting service office using AutoCAD and Revit
- in construction, maintenance, and planning
- with real estate and facilities management companies

### **SUCCESS FACTORS**

This program is well-suited for students who:

- Are detail-oriented, organized and committed to achieving excellence in their work.
- Are creative and enjoy solving technical problems.
- Thrive in a dynamic and technically-driven environment.
- Think visually and creatively.

### **Employment**

Graduates may find employment in architects` offices, with contractors in a number of capacities, in a drafting service office using AutoCAD and Revit, as building material sales representatives, in facilities management, and in municipal, provincial and federal agencies dealing with construction, real estate and planning.

### **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.
- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

## Program of Study

Level: 01	Courses	Hours
ARC8421	Construction Methods and Materials I	42.0
ARC8601	Working Drawings I	70.0
CAD8407	Architectural CAD I	42.0
DSN8401	Visual Communication I	42.0
ENG8490	Mathematics for Architecture	42.0
ENL1813T	Communications I	42.0
GED2012	Achieving Success in the 21st Century	42.0
Level: 02	Courses	Hours
ARC8422	Construction Methods and Materials II	42.0
ARC8602	Working Drawings II	70.0
BSC8451	Environmental Systems I	42.0
CAD8409	Architectural CAD II	42.0
DSN8402	Visual Communication II	42.0
GEP1001	Cooperative Education and Job Readiness	18.0
HIS8482	History of Architecture	42.0
Choose one from equivalencies:	Courses	Hours
GED0188	General Education Elective	42.0
Level: 03	Courses	Hours
ARC8423	Construction Methods and Materials III	42.0
ARC8430	Codes and Standards	42.0
ARC8603	Working Drawings III	70.0
BSC8452	Environmental Systems II	42.0
CAD8414	Revit I	42.0
DSN8441	Design I	42.0

Choose one from equivalencies: Courses		Hours
GED0188	General Education Elective	42.0
Co-op: 01 Courses		Hours
WKT2101A	Architecture Work Term 1 (Optional)	
Level: 04 Courses		Hours
ARC8424	Construction Methods and Materials IV	42.0
ARC8510	Project Administration I	42.0
ARC8604	Working Drawings IV	70.0
CAD8415	Revit II	42.0
DSN8442	Design II	42.0
ENG8491	Structures I	42.0
ENL2019T	Technical Communication for Engineering Technologies	42.0

## Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at <https://www.algonquincollege.com/fee-estimator>.

Further information on fees can be found by visiting the Registrar's Office website at <https://www.algonquincollege.com/ro>.

Fees are subject to change.

Additional program related expenses include:

- Books and supplies cost approximately \$1,200 in the first year and \$450 in the second and third years and can be purchased from the campus store. For more information visit <https://www.algonquincollege.com/coursematerials>.
- Students may be required to purchase CSA-approved safety footwear and safety glasses to participate in site visit activities.

## Admission Requirements for the 2024/2025 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR
- Academic and Career Entrance (ACE) certificate; OR
- General Educational Development (GED) certificate; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 (subject to change).

### Program Eligibility

- English, Grade 12 (ENG4C or equivalent)

- Mathematics, (Grade 12 MAP4C with a grade of 60% or higher) or (Grade 11 MCF3M with a grade of 50% or higher) or equivalent.
- Applicants who have been out of school for a period of time are encouraged to take a refresher course in mathematics and/or basic computer skills prior to the start of classes. Refresher/upgrading courses are available through Academic Upgrading courses, AC Online, and through local school boards.
- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).
- IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT)-overall 80, with a minimum of 20 in each component: Reading: 20; Listening: 20; Speaking: 20; Writing: 20; OR Duolingo English Test (DET) Overall 110, minimum of 110 in Literacy and no score below 95.

Not sure if you meet all of the requirements? Academic Upgrading may be able to help with that: <https://www.algonquincollege.com/access/> .

Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

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## Application Information

### **ARCHITECTURAL TECHNICIAN (CO-OP AND NON CO-OP VERSION)** **Program Code 0188X03FWO**

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca  
60 Corporate Court  
Guelph, Ontario N1G 5J3  
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at <http://www.ontariocolleges.ca/>.

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information:  
<https://algonquincollege.force.com/myACint/>.

For further information on the admissions process, contact:

Registrar`s Office  
Algonquin College  
1385 Woodroffe Ave  
Ottawa, ON K2G 1V8  
Telephone: 613-727-0002  
Toll-free: 1-800-565-4723  
TTY: 613-727-7766  
Fax: 613-727-7632  
Contact: <https://www.algonquincollege.com/ro>

## Additional Information

### **CO-OP INFORMATION:**

All applicants apply directly to the co-op version of this program through OntarioColleges.ca or our International Application Portal. Applicants not wishing to pursue the co-op version will have the opportunity to opt-out after being admitted to the program but prior to the first co-op work term.

Co-operative education (Co-op) allows students to integrate their classroom learning with a real-world experience through paid work terms. Two academic terms prior to the cooperative education work term, students are required to actively participate in and successfully complete the self-directed co-op course, readiness activities and workshops.

Students must actively conduct a guided, self-directed job search and are responsible for securing approved program-related paid co-op employment. Students compete for co-op positions alongside students from Algonquin College and other Canadian and international colleges and universities. Algonquin College's Co-op Department provides assistance in developing co-op job opportunities and guides the overall process, but does not guarantee that a student will obtain employment in a co-op work term. Co-op students may be required to relocate to take part in the co-op employment opportunities available in their industry and must cover all associated expenses; e.g., travel, work permits, visa applications, accommodation and all other incurred expenses.

Co-op work terms are typically 14 weeks in duration and are completed during a term when students are not taking courses. For more information on your program's co-op level(s), visit the courses tab on your program's webpage.

International students enrolled in a co-op program are required by Immigration, Refugees and Citizenship Canada (IRCC) to have a valid Co-op/Internship Work Permit prior to commencing their work term. Without this document International students are not legally eligible to engage in work in Canada that is part of an academic program. The Co-op/Internship Work Permit does not authorize international students to work outside the requirements of their academic program.

For more information on co-op programs, the co-op work/study schedule, as well as general and



program-specific co-op eligibility criteria, please visit <https://www.algonquincollege.com/coop> .

Students who have completed all course requirements equivalent to the Architectural Technician program of study with a minimum GPA of 2.40 are eligible to apply to Level 05 of the Architectural Technology program.

Architectural Technician graduates are eligible to apply for the following Ontario College graduate certificate programs: Green Architecture, Building Information Modeling-Lifecycle Management (BIM-LM). Graduates may also be eligible for advanced standing in the Bachelor of Building Science Degree Program.

For standard delivery, students will be scheduled for two consecutive semesters followed by a one semester break. Exceptions must be approved by the Academic Chair.

**Note:** Students who are not successful in Level 01 Working Drawings 1 and/or Construction Methods and Materials 1 and/or Architectural CAD 1 will be withdrawn from the program and must reapply through ontariocolleges.ca.

## Course Descriptions

### **ARC8421 Construction Methods and Materials I**

Students are introduced to the physical characteristics of building materials used in residential wood-frame construction. Structural components and stair systems are also explored in regard to the Ontario Building Code.

Prerequisite(s): none  
Corerequisite(s):none

### **ARC8422 Construction Methods and Materials II**

Students further their residential wood-frame knowledge by examining local zoning and building site conditions, masonry and exterior cladding, and basic building science principles in regard to insulation and the building envelope. Students acquire Workplace Hazardous Materials Information System training.

Prerequisite(s): ARC8421  
Corerequisite(s):none

### **ARC8423 Construction Methods and Materials III**

Students apply building code requirements and engineered framing systems for Part 9 of the Ontario Building Code, Small Buildings. The fundamental concepts of sustainability are explored as well as alternate construction materials and methods. Construction sequencing and time lines are examined for a typical residential project. Finally, teamwork is emphasized as students work in groups to produce a detailed architectural model.

Prerequisite(s): ARC8422  
Corerequisite(s):none

### **ARC8424 Construction Methods and Materials IV**

The construction methods and materials used in commercial construction are introduced. Students review the Building Code Act, Part 10 (Change of Use) and Part 11 (Renovations) of the Ontario Building Code.

Prerequisite(s): ARC8423  
Corerequisite(s):none

### **ARC8430 Codes and Standards**

An introduction to the structure and content of the Ontario Building Code with emphasis on Division B Part 3 "Fire Protection, Occupant Safety and Accessibility" and Part 9 "Housing and Small Buildings" is provided. Students participate in in-class sessions and online worksheets.

Prerequisite(s): ARC8422  
Corerequisite(s):none

### **ARC8510 Project Administration I**

An overview of the Architectural, Engineering and construction industry, with a focus on integrated design teams, industry standards, regulations and documentation. Introduction to understanding industry stakeholders, project delivery methodologies, specifications, cost estimating techniques, standard industry contracts and the project manual.

Prerequisite(s): ARC8423 and ENG8490  
Corerequisite(s):none

### **ARC8601 Working Drawings I**

Manual drafting skills are used to develop a set of basic working drawings for a small, wood-frame house. Drawings include plans, elevations, sections and details. Emphasis is placed on communicating information through the use of best practices and industry graphic standards.

Prerequisite(s): none  
Corerequisite(s):none

### **ARC8602 Working Drawings II**

Using Computer Aided Drafting(CAD) software, students prepare building permit caliber working drawings for a two-storey wood-frame house. Hand sketching is used to explore and resolve a variety of construction details throughout the project.

Prerequisite(s): ARC8421 and ARC8601 and CAD8407  
Corerequisite(s):none

### **ARC8603 Working Drawings III**

Students explore a mixed-use building in a renovation and addition project, including design for new construction assemblies and existing wall construction with respect to the Ontario Building Code. Students apply accessibility and life safety fundamentals to the proposed building and produce a coordinated partial set of working drawings.

Prerequisite(s): ARC8602 and CAD8409  
Corerequisite(s):none

### **ARC8604 Working Drawings IV**

Students apply Part 3 of the Ontario Building Code, with a focus on occupant safety and building envelope requirements to examine various commercial building occupancies, construction assemblies and apply more in-depth building science principles. Students gain an understanding of the relationship and coordination, between architectural, structural, mechanical and electrical systems.

Prerequisite(s): ARC8430 and ARC8603  
Corerequisite(s):none

### **BSC8451 Environmental Systems I**

Students learn the basic concepts of water flow and heat transfer. Students are introduced to pipe terminology, pipe design logic and pipe systems functions. Students are also introduced to the concepts of building heat loss, the functions of the residential heating systems and the advantage of using one fuel relative to another.

Prerequisite(s): ENG8490  
Corerequisite(s):none



**BSC8452 Environmental Systems II**

Students are introduced to the concepts of ductwork, air conditioning equipment, hydronic heating systems, electrical systems and building protection equipment. Students learn how these interact with the design of a building.

Prerequisite(s): BSC8451

Corerequisite(s):none

**CAD8407 Architectural CAD I**

Students are introduced to Computer Aided Drafting (CAD) using AutoCAD software. Students learn the basic principles and understanding to produce two-dimensional architectural drawings.

Prerequisite(s): none

Corerequisite(s):none

**CAD8409 Architectural CAD II**

Further developing the basic principles using CAD software, students expand their knowledge to produce more detailed and complex two-dimensional architectural drawings. Students are introduced to three-dimensional architectural modelling using Revit Software.

Prerequisite(s): CAD8407

Corerequisite(s):none

**CAD8414 Revit I**

Students learn the basic creation and editing commands for Revit software. Annotating and view controls are also taught as students complete several assignments dealing with residential buildings. A final exam creates a basic residential model and drawing set.

Prerequisite(s): ARC8602 and CAD8409

Corerequisite(s):none

**CAD8415 Revit II**

Students build on the basic tools and skills learned in Revit I. More advanced features of Revit such as detailing, curtain walls, parametric families, site features and rendering are explored. Students create a Revit model and a partial drawing set for a commercial building project.

Prerequisite(s): CAD8414

Corerequisite(s):none

**DSN8401 Visual Communication I**

Visual communication and presentation techniques are essential aspects of any architectural project and design to communicate project ideas with clients and other stakeholders. Students are introduced to a variety of skills necessary to communicate architectural ideas and concepts visually. Emphasis is placed on hand drawing/sketching while developing an understanding of how to analyze and perceive 3-dimensional shapes and forms. Formal presentation techniques and physical model building are also explored.

Prerequisite(s): none

Corerequisite(s):none

**DSN8402 Visual Communication II**

Students further study graphic communication skills for architecture. Emphasis is placed on the creation of simple 3D digital models, as well as architectural graphic presentations using a variety

of current software applications.

Prerequisite(s): none  
Corerequisite(s):none

### **DSN8441 Design I**

Architectural design development is one of the initial steps to a project development. Students are introduced to the theory and concepts of architectural design through an analysis of Form and Space. The fundamental elements of architecture, spatial concepts and organizational principles are explored using built form examples. Students design and prepare an architectural presentation for variety of small-scale design projects and a residential project.

Prerequisite(s): DSN8401 and DSN8402  
Corerequisite(s):none

### **DSN8442 Design II**

Project design development and design process requires research and overview from multiple facades. The design process is explored through a series of architectural design problems. Students are introduced to architectural design influences, such as context, zoning, programming, accessibility and aesthetics. Students design and prepare an architectural presentation for a small commercial building.

Prerequisite(s): DSN8441  
Corerequisite(s):none

### **ENG8490 Mathematics for Architecture**

Students examine key principles and concepts in algebra, geometry, and trigonometry focusing on its application to building design and construction, through instructor lead examples, in-class work, readings and assignments.

Prerequisite(s): none  
Corerequisite(s):none

### **ENG8491 Structures I**

The fundamentals, principles and common rules of structural systems for larger commercial type buildings are explored. Students undertake preliminary sizing of structural members, develop structural drawings/details to support their Working Drawings IV course.

Prerequisite(s): ENG8490  
Corerequisite(s):none

### **ENL1813T Communications I**

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none  
Corerequisite(s):none

### **ENL2019T Technical Communication for Engineering Technologies**

The ability to communicate effectively in a technically-oriented interdisciplinary workplace is a foundational skill in an innovation-driven economy. Students are exposed to exercises and assignments designed to foster independent and collaborative critical thinking, research, writing,

visual communication and presentation skills related to technical topics.

Prerequisite(s): ENL1813T

Corerequisite(s):none

### **GED0188 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none

Corerequisite(s):none

### **GED0188 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none

Corerequisite(s):none

### **GED2012 Achieving Success in the 21st Century**

Rapid changes in technology have created new employment and business opportunities that challenge each of us to find our place as citizens in the emerging society. Life in the 21st century presents significant opportunities, creates potential hazards and demands that we face new responsibilities in ethical ways. Students explore the possibilities ahead, assess their own aptitudes and strengths, and apply critical thinking and decision-making tools to help resolve some of the important issues present in our complex society with its competing interests.

Prerequisite(s): none

Corerequisite(s):none

### **GEP1001 Cooperative Education and Job Readiness**

Students are guided through a series of activities that prepare them to conduct a professional job search and succeed in the workplace. Through a detailed orientation students learn the cooperative education program policies and procedures related to searching and securing a work term opportunity. Students identify their strengths and transferable skills and participate in workshop-style sessions that focus on cover letter and resume development, interview techniques and job search strategies. Students learn how to navigate a web-based resource centre, which is used to post employment and cooperative education job opportunities. Students reflect on workplace success, ethics and responsibilities.

Prerequisite(s): none

Corerequisite(s):none

### **HIS8482 History of Architecture**

Students explore the major cultural trends and technological events which have influenced the development of western architecture, from pre-history to the present day. Students develop a general understanding of the origins of architectural styles and the evolution of building technology.

Prerequisite(s): none

Corerequisite(s):none

### **WKT2101A Architecture Work Term 1 (Optional)**

This course includes a work placement, a weekly recording of the activities done in a journal and a

final summary report of the overall experience to be submitted before returning to school. The placement has to be in a construction-related industry, preferably architecture. The timing of the placement depends on the progression pattern of the program and cannot be done before completion of the second level of the Architecture Technician program. The placement is monitored by the College. Feedback from the employer is considered in the final evaluation of the course. All assignments (journal entries and final report) must be provided to pass the course. The College Coop office assists in finding a placement however, it is the students responsibility to find, apply and get the work term as if they were applying for a job.

Prerequisite(s): none  
Corerequisite(s):none