

## BUILDING RENOVATION TECHNOLOGY PROGRAM (T148)

<b>PROGRAM NAME</b>	Building Renovation Technology	<b>TUITION</b>	\$3,975.00 *
<b>COURSE CODE</b>	T148	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades	* Amounts listed are the total of tuition, materials, student service and ancillary fees for the first two semesters of programs starting in Fall 2019. Fees are subject to change for programs starting in Fall 2020 and at later dates.	
<b>CENTRE</b>	Construction Engineering Technology	<b>International students:</b> Visit the International Fees and Related Costs <sup>2</sup> page for more information.	
<b>LOCATION</b>	Casa Loma Campus	<b>FINANCIAL ASSISTANCE</b>	
<b>DURATION</b>	3 years (6 semesters)	This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.	
<b>EXPERIENTIAL LEARNING</b>	Mandatory Field Placement		
<b>STARTING MONTH</b>	September, January		
<b>CREDENTIAL</b>	Ontario College Advanced Diploma		
<b>YEAR OF STUDY</b>	2020-2021		
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		

This program is designed to teach you new construction and building renovation skills from both an applied perspective and a management perspective, including carpentry techniques and new materials applications while providing a solid understanding of the renovation-related trades.



Hands-on training takes place in fully equipped labs where students practice current techniques related to renovations and new home construction, using sustainable design principles. The third year of the program focuses on project management skills required to work in a supervisory role. You will also have an introductory exposure to the business skills that can be adapted to starting and running a renovation, custom home building or general contracting business.

Practical applications include:

- Residential construction and renovations
- Millwork
- Demolition
- Framing
- Finishes
- Drywall installation and finishing
- Site management
- Cabinetry
- Stair construction
- Building code
- Basic electrical, HVAC, and plumbing systems.

Business skills include:

- Business management
- Marketing
- Client relations
- Project management

- Site management
- Scheduling
- Controlling, estimating and bookkeeping
- Budgeting and financial management
- Inspections

You will also learn how to use and apply computer software and technology currently used in the construction industry, including spreadsheets, computer-aided design, estimating, project management and presentation tools.

Note: When you enrol in the program in January, you are required to complete semester 2 in the summer (May to August) of the same year in order to continue into semester 3 in the fall.

**This program is unique in Ontario.**

### PART TIME STUDY OPTIONS

Part-time study options are not available for this program; however, our Continuing Education department offers evening courses and part-time certificate programs in Building/Construction Technologies. See [coned.georgebrown.ca](http://coned.georgebrown.ca)

### EXPERIENTIAL LEARNING

Mandatory Field Placement

### YOUR FIELD STUDY OPTIONS

This program requires the successful completion of two semesters of field placement. George Brown works with employers and industry partners to identify potential work experience opportunities. Students are also strongly encouraged to pursue self-directed industry work experience opportunities they believe would provide the learning experiences they value and meet the learning outcomes of the program. This valuable work experience can in turn be added to your resume.

In addition to more formal on-the-job work experience, George Brown College endeavours to provide additional learning opportunities with real-world challenges and clients. Find out more about field education<sup>3</sup> at our Industry Liaison Office.

## PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Develop and use strategies for ongoing professional development to remain current with industry changes, enhance work performance and explore career opportunities.
2. Comply with and monitor health and safety practices and procedures in accordance with current legislation and regulations.
3. Prepare quotes and monitor that work is completed in compliance with the rights and conditions of contractual obligations, the Ontario and/or National Building Codes, applicable laws, bylaws, standards and ethical practices in the building construction and renovation field.
4. Promote and maintain sustainability practices in the implementation of building construction and renovation projects.
5. Facilitate collaboration and interaction among a range of tradespersons and project stakeholders to support timely completion of building construction and renovation projects.
6. Review and interpret project plans and produce technical sketches and documents to support building construction and renovation projects.
7. Use technologies to obtain, analyze, organize and communicate building construction and renovation information.
8. Analyze and solve technical problems related to the design and implementation of building construction and renovation projects by applying the principles of advanced technical mathematics, building design and building science.
9. Select, maintain and safely use hand tools, and portable and stationary power tools, when performing layout, cutting, fitting and assembly operations.
10. Complete building and renovation stages, from site layout and footings to the application of interior and exterior finishes, in accordance with blueprint specifications and conservation principles.
11. Evaluate the methods employed and the use of equipment and materials involved in the completion of building construction and renovation projects.
12. Schedule, coordinate and monitor the progression of building construction and renovation projects by applying principles and strategies of project management.
13. Design and implement business strategies to develop home building, renovation and re-development enterprises.
14. Apply leadership, supervision and interpersonal skills to manage building construction and renovation projects.

## REQUIRED COURSES

### SEMESTER 1

Code	Course Name
BLDG 1009	Residential Wood Frame Construction
DRFT1006	Architectural Plan Interpretation 1
GHUM1106	History of Architecture
COMM1007	College English
MATH1136	Mathematics for Building Technologies 1

### SEMESTER 2

Code	Course Name
BLDG 1081	Construction Safety & Rigging
BLDG 1082	Construction Layout
DRFT 2017	Architectural Plan Interpretation 2
GSCI 1022	Building Science & Environment
PORT 1001	Portfolio
BLDG2003	ICI Renovation
MATH1146	Mathematics for Building Technologies 2

### SEMESTER 3

Code	Course Name
BLDG1020	Interior Millwork and Finishes
BLDG2033	Field Placement 1
BLDG2052	Methods of Measurement: Renovation and Redevelopment
BLDG3027	Deconstruction Methods
COMM1113	Professional Communications for Building Technologies
GNED	General Education Elective

### SEMESTER 4

Code	Course Name
BLDG2008	Associated Trades – Applied Theory and Applications
BLDG2027	Field Placement 2
BLDG2050	Estimating
BLDG2071	Site Management and Industry Practices
GNED	General Education Elective

### SEMESTER 5

Code	Course Name
BLDG2047	Planning and Scheduling
BLDG3153	Residential Design 1 (CAD)
BLDG3154	Construction Economics and Real Estate Property Development
BLDG3155	Business Management and Development
BLDG3157	Inspections
BLDG3158	Financial Management and Bookkeeping

## SEMESTER 6

Code	Course Name
BLDG1013	Zoning and Building Regulations
BLDG1164	Fundamentals of Building Science
BLDG2022	Law and Construction Contracts
BLDG3026	Sustainable Building Rating Systems and Renovation Practices
BLDG3159	Residential Design 2 (CAD)
BLDG3161	Building Renovation Project Management Capstone

## YOUR CAREER

Graduates may find employment in many areas of the renovation and construction field. Opportunities include:

- Renovation
- General contracting
- Custom home building
- Green technology
- Site supervision
- Project management
- Estimating
- Technical sales
- Home inspections
- Carpentry
- Self-employment

## FUTURE STUDY OPTIONS

Qualified graduates may be eligible for direct entry into the third year of the George Brown College Honours Bachelor of Technology (Construction Management) (T312)<sup>4</sup> degree program. Bridge courses will be required.

For more information, see [georgebrown.ca/T312\\_Diploma\\_to\\_Degree](http://georgebrown.ca/T312_Diploma_to_Degree)

## EDUCATIONAL/DEGREE PATHWAY

Qualified graduates may be eligible for direct entry into the third year of the George Brown College Honours Bachelor of Technology (Construction Management) degree program. Bridge courses will be required.

For more information, see [georgebrown.ca/T312\\_Diploma\\_to\\_Degree](http://georgebrown.ca/T312_Diploma_to_Degree)

## ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

### \*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)

Mature Students may take the Admissions Assessment<sup>5</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>6</sup> and Math<sup>7</sup>.

Please note that George Brown is committed to ensuring that applicants will succeed in their program of choice and meeting the minimum requirements does not guarantee admission to the program. Applicants may be required to have grades higher than the minimum requirements stated.

## COURSE EXEMPTIONS

College or university credits may qualify you for course exemptions. Please visit [georgebrown.ca/transferguide](http://georgebrown.ca/transferguide) for more information.

## INTERNATIONAL STUDENTS

Visit the International Admissions<sup>8</sup> page for more information.

## CONTACT US

### School of Apprenticeship and Skilled Trades

Phone: 416-415-5000, ext. 6711

Email: [bmulveney@georgebrown.ca](mailto:bmulveney@georgebrown.ca)

Office: Casa Loma Campus, Room E308

For more information about George Brown College, you may also call the Contact Centre at 416-415-2000 (TTY 1-877-515-5559) or long distance 1-800-265-2002.

## VISIT OUR CAMPUS

Do you have questions about this program or your career options? Join us for an on-campus Information Session. You'll have the opportunity to meet our friendly instructors and staff, ask questions and experience what it's like to be in a George Brown College classroom. Sign up for an Information Session<sup>9</sup>.

## LINKS REFERENCE

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T148&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.georgebrown.ca/industry/cet/>

<sup>4</sup><http://www.georgebrown.ca/programs/honours-bachelor-of-technology-construction-management-t312/>

<sup>5</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>6</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>7</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>8</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>9</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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## CARPENTRY AND RENOVATION TECHNICIAN PROGRAM (T180) (PREVIOUSLY T110)

<b>PROGRAM NAME</b>	Carpentry and Renovation Technician	<b>TUITION</b>	\$3,974.00*
<b>COURSE CODE</b>	T180	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades		
<b>CENTRE</b>	Construction Engineering Technology		
<b>LOCATION</b>	Casa Loma Campus		
<b>DURATION</b>	2 years (4 semesters)		
<b>EXPERIENTIAL LEARNING</b>	Field Placement		
<b>STARTING MONTH</b>	September, January		
<b>CREDENTIAL</b>	Ontario College Diploma		
<b>YEAR OF STUDY</b>	2020-2021		
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		

Building Renovation Technician is a two-year program designed to prepare you for employment in the renovation and construction field, with sustainable design principles being key.



You will learn new construction and building renovation skills, carpentry techniques and new materials applications while gaining a solid understanding of the renovation-related trades. Hands-on training takes place in fully equipped labs where students practice framing and finishing techniques using sustainable design principles.

Practical applications include:

- Residential construction and renovations
- Millwork
- Demolition
- Framing
- Finishes
- Drywall installation and finishing
- Site management
- Cabinetry
- Stair construction
- Building code
- Basics in electrical, HVAC, and plumbing systems
- Estimating

Note: When you enrol in the program in January, you are required to complete semester 2 in the summer (May to August) of the same year in order to continue into semester 3 in the fall.

### PART TIME STUDY OPTIONS

Part-time study options are not available for this program; however, our Continuing Education department offers evening courses and part-time certificate programs in Building/Construction Technologies. See [coned.georgebrown.ca](http://coned.georgebrown.ca)

### EXPERIENTIAL LEARNING

Field Placement

### YOUR FIELD STUDY OPTIONS

This program offers two field placement opportunities in semester 3 and semester 4. George Brown works with employers and industry partners to identify potential work experience opportunities. Students are also strongly encouraged to pursue self-directed industry work experience opportunities they believe would provide the learning experiences they value and meet the learning outcomes of the program. This valuable work experience can in turn be added to your resume.

In addition to more formal on-the-job work experience, George Brown College endeavours to provide additional learning opportunities with real-world challenges and clients. Find out more about field education<sup>3</sup> at our Industry Liaison office.

### PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Develop and use strategies for ongoing professional development to remain current with industry changes, enhance work performance and explore career opportunities.

2. Comply with health and safety practices and procedures in accordance with current legislation and regulations.
3. Assist in the preparation of material estimations and quotes and complete all work in compliance with the rights and conditions of contractual obligations, the Ontario and/or National Building Codes, applicable laws, bylaws, standards and ethical practices in the construction, renovation and conservation building fields.
4. Incorporate sustainability practices in the implementation of building construction, renovation and conservation projects in accordance with sustainable building guidelines.
5. Communicate and collaborate with diverse clients, supervisors, coworkers and tradespersons to complete projects on time and to maintain effective working relationships.
6. Interpret project plans and produce technical sketches and documents to support building construction and renovation projects.
7. Select and use technologies to obtain, organize and communicate building construction and renovation information.
8. Solve problems related to the implementation of building construction and renovation projects by applying the principles of basic technical mathematics, building design and building science.
9. Select, maintain and safely use hand tools, and portable and stationary power tools, when performing layout, cutting, fitting and assembly operations.
10. Complete building and renovation stages, from site layout and footings to the application of interior and exterior finishes, in accordance with blueprint specifications and conservation principles.
11. Select a range of materials and equipment for their appropriate application to building construction and renovation projects.
12. Schedule and assist in monitoring the progression of building construction and renovation projects by applying basic principles and strategies of project management.
13. Apply basic business principles and strategies to the operation of building construction and/or renovation enterprise.

## REQUIRED COURSES

### SEMESTER 1

Code	Course Name
BLDG 1009	Residential Wood Frame Construction
DRFT1006	Architectural Plan Interpretation 1
GHUM1106	History of Architecture
COMM1007	College English
MATH1136	Mathematics for Building Technologies 1

### SEMESTER 2

Code	Course Name
BLDG1081	Construction Safety and Rigging
BLDG1082	Construction Layout
BLDG2003	ICI Renovation
DRFT2017	Architectural Plan Interpretation 2
PORT 1001	Portfolio
GSCI1022	Building Science and the Environment
MATH1146	Mathematics for Building Technologies 2

### SEMESTER 3

Code	Course Name
BLDG1020	Interior Millwork and Finishes
BLDG2033	Field Placement 1
BLDG2052	Methods of Measurement: Renovation and Redevelopment
BLDG3027	Deconstruction Methods
COMM1113	Professional Communications for Building Technologies
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### SEMESTER 4

Code	Course Name
BLDG2008	Associated Trades – Applied Theory and Applications
BLDG2027	Field Placement 2
BLDG2050	Estimating
BLDG2071	Site Management and Industry Practices
GNED	General Education Elective

## YOUR CAREER

Graduates may find employment in many areas of the renovation and construction field. Opportunities may include:

- Renovation
- General contracting
- Custom home building
- Carpentry
- Site supervision
- Estimating
- Technical sales
- Home inspections

## FUTURE STUDY OPTIONS

This program shares the first four semesters with the three-year Building Renovation Technology advanced diploma program (T148)<sup>4</sup>. Students may be eligible to proceed to semester 5 of the program.

Pathways to the Honours Bachelor of Technology (Construction Management) degree program are available from the Building Renovation Technology advanced diploma program (T148). Bridge courses will be required. For more information, see [georgebrown.ca/T312\\_Diploma\\_to\\_Degree](http://georgebrown.ca/T312_Diploma_to_Degree)

## EDUCATIONAL/DEGREE PATHWAY

Pathways for direct entry into the third year of the Honours Bachelor of Technology (Construction Management) degree program are available from the Building Renovation Technology advanced diploma program (T148).

For more information, see [georgebrown.ca/T312\\_Diploma\\_to\\_Degree](http://georgebrown.ca/T312_Diploma_to_Degree)

## ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

### \*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)

Mature Students may take the Admissions Assessment<sup>5</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>6</sup> and Math<sup>7</sup>.

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## COURSE EXEMPTIONS

College or university credits may qualify you for course exemptions. Please visit [georgebrown.ca/transferguide](http://georgebrown.ca/transferguide) for more information.

## INTERNATIONAL STUDENTS

Visit the International Admissions<sup>8</sup> page for more information.

"I'm working hard to maintain George Brown College's good reputation. I never realized that I would get such enjoyment and be so enthusiastic about going to school here – the hard work I put in all seems worth it."

**Delonny Octave** (Student, Building Renovation Technician)

## CONTACT US

### School of Apprenticeship and Skilled Trades

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## VISIT OUR CAMPUS

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## LINKS REFERENCE

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T110&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.georgebrown.ca/industry/cet/>

<sup>4</sup><http://www.georgebrown.ca/programs/building-renovation-technology-program-t148/>

<sup>5</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>6</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>7</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

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## CONSTRUCTION TECHNIQUES PROGRAM (T176) (PREVIOUSLY T126)

<b>PROGRAM NAME</b>	Construction Techniques	<b>TUITION</b>	\$5,670.00 †
<b>COURSE CODE</b>	T176	<b>ADDITIONAL COST</b>	† Amounts listed are the total of tuition, materials, student service and ancillary fees for the <b>three</b> semesters of programs starting in Fall <b>2019</b> . Fees are subject to change for programs starting in Fall 2020 and at later dates.
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades	<b>INTERNATIONAL STUDENTS:</b>	Visit the International Fees and Related Costs <sup>2</sup> page for more information.
<b>CENTRE</b>	Construction Engineering Technology	<b>FINANCIAL ASSISTANCE</b>	This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.
<b>LOCATION</b>	Casa Loma Campus		
<b>DURATION</b>	1 year (3 semesters)		
<b>STARTING MONTH</b>	September, January, May		
<b>CREDENTIAL</b>	Ontario College Certificate		
<b>YEAR OF STUDY</b>	2020-2021		
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		

The Construction Techniques program covers popular construction trade areas and has three intakes per year.

This program is designed to offer you choices when considering a career in the construction sector. It exposes you to a variety of trades allowing you to determine where your interests lie. The program will prepare you with basic skills that will assist you in taking the next steps in your career path.

**Semester 1:** Electrical/Millwrighting

**Semester 2:** Sheet Metal/Air Conditioning/Carpentry

**Semester 3:** Welding/Steamfitting/Plumbing

Through practical projects interwoven with theoretical learning, you will gain confidence and experience in the individual trade sections, giving you the information necessary to make informed career choices as well as a good understanding of the construction process.

### THE INDUSTRY

The construction industry is one of the country's largest employers, and skilled trades workers are among the highest paid and most in demand in Canada.

Ontario will need to attract over 100,000 new construction workers over the next 10 years.

### PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Identify and use strategies to enhance professional growth and ongoing learning in the construction field.
2. Identify and adhere to established health and safety practices.
3. Perform all construction tasks in compliance with applicable laws, regulations, codes and ethical practices in the construction field.

4. Work in accordance with established sustainability practices.
5. Collaborate with a range of tradespersons and project stakeholders to maintain effective working relationships.
6. Communicate technical information to a variety of clients, supervisors and tradespersons to participate in the successful completion of construction projects.
7. Identify and use industry-specific technologies to support construction projects.
8. Solve on-site trade-related construction problems using mathematical equations and geometric concepts.
9. Select, maintain and safely operate hand and power tools and equipment used in the building construction trades.
10. Assist in the preparation of project estimates.
11. Assist skilled tradespersons and perform labouring tasks at construction sites.

### REQUIRED COURSES

#### SEMESTER 1

Code	Course name
BLDG1124	Electrical Trade Theory
BLDG1125	Introduction to Electrical – Code and Prints
BLDG1121	Electrical Trade Shop
BLDG1122	Technical Drawing
BLDG1123	Millwrighting Trade Shop
COMM1007	College English

#### SEMESTER 2

Code	Course name
BLDG1132	Carpentry Trade Theory
BLDG1133	Carpentry Trade Shop
BLDG1134	Trade Calculations
BLDG1135	Refrigeration Trade Theory
BLDG1137	Sheet Metal Trade Theory
BLDG1138	Refrigeration Trade Shop
BLDG1139	Sheet Metal Trade Shop
GNED	General Education Elective

## SEMESTER 3

Code	Course name
BLDG1110	Welding Trade Theory
BLDG1111	Welding Trade Shop
BLDG1112	Plumbing Trade Theory
BLDG1113	Plumbing Trade Shop
BLDG1114	Trade Documentation
GNED	General Education Elective

## YOUR CAREER

As a graduate of the program, you can bring a broad range of skills to future employers. Once you have decided which sector of the industry interests you, you can seek employment in that area or increase your marketability and knowledge by continuing on to a one-year, two-year or three-year program at George Brown College.

## ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

### \*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)

Mature Students may take the Admissions Assessment<sup>3</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>4</sup> and Math<sup>5</sup>.

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## COURSE EXEMPTIONS

College or university credits may qualify you for course exemptions. Please visit [georgebrown.ca/transferguide](http://georgebrown.ca/transferguide) for more information.

## INTERNATIONAL STUDENTS

Visit the International Admissions<sup>6</sup> page for more information.

"If you like a little bit of everything, like I do, or you're still feeling out what works best for you, this program is a fantastic opportunity. Each semester is full of different trades and new experiences. I have learned so much, not just in theory, but in practice too. It has been an unbelievably valuable experience. I love understanding the overlap the trades have with one another!"

**Alicia Parrott-Barros** (Graduate, Construction Trades Techniques)

## CONTACT US

### School of Apprenticeship and Skilled Trades

Phone: 416-415-5000, ext. 6711

Email: [bmulveney@georgebrown.ca](mailto:bmulveney@georgebrown.ca)

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Sign up for an Information Session<sup>7</sup>.

## LINKS REFERENCE

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T126&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>4</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>5</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>6</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>7</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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## ELECTRICAL TECHNIQUES PROGRAM (T167)

<b>PROGRAM NAME</b>	Electrical Techniques	<b>TUITION</b>	\$ 4,929.00 *
<b>COURSE CODE</b>	T167	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades		
<b>CENTRE</b>	Construction Engineering Technology		* Amounts listed are the total of tuition, materials, student service and ancillary fees for the first two semesters of programs starting in fall 2019. Fees are subject to change for programs starting in fall 2020 and at later dates.
<b>LOCATION</b>	Casa Loma Campus		
<b>DURATION</b>	1 year (2 semesters)		
<b>STARTING MONTH</b>	May	<b>International students:</b>	Visit the International Fees and Related Costs <sup>2</sup> page for more information.
<b>CREDENTIAL</b>	Ontario College Certificate	<b>FINANCIAL ASSISTANCE</b>	
<b>YEAR OF STUDY</b>	2020-2021		This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		



The program covers installation, testing, maintenance, analysis and troubleshooting of specified electrical circuits, equipment and systems under the supervision of a qualified person. Throughout the program, students will learn to apply health and safety standards to their work, and perform tasks in accordance with the standards of the Canadian Electrical Code.

Graduates will receive a post-secondary certificate.

### THE INDUSTRY

The construction industry is one of the country's largest employers, and skilled trades workers are among the highest paid and most in demand in Canada.

### PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Assist in the interpretation and preparation of electrical drawings including other related documents and graphics.
2. Analyze and solve simple technical problems related to basic electrical systems by applying mathematics and science principles.
3. Use and maintain test and instrumentation equipment.

4. Assemble basic electrical circuits and equipment to fulfill requirements and specifications under the supervision of a qualified person.
5. Assist in the installation and troubleshooting of basic electrical machines and associated control systems under the supervision of a qualified person.
6. Assist in testing and troubleshooting electrical and electronic circuits, equipment, and systems by using established procedures under the supervision of a qualified person.
7. Assist in the troubleshooting of control systems under the supervision of a qualified person.
8. Use computer skills and tools to solve basic electrical related problems.
9. Assist in conducting quality assurance procedures under the supervision of a qualified person.
10. Assist in the preparation and maintenance of records and documentation systems.
11. Install and assist in testing telecommunication systems under the supervision of a qualified person.
12. Apply health and safety standards and best practices to workplaces.
13. Perform tasks in accordance with relevant legislation, policies, procedures, standards, regulations, and ethical principles.
14. Apply basic electrical cabling requirements and install and test system grounding for a specified number of applications under the supervision of a qualified person.
15. Identify problems and troubleshoot electrical systems under the supervision of a qualified person.
16. Assist in the selection of electrical equipment, systems and components to fulfill the requirements and specifications under the supervision of a qualified person.

## REQUIRED COURSES

### SEMESTER 1

Code	Course Name
ELCL1047	Residential Prints and Electrical Safety Code 1
ELCL1048	Electrical Installation Methods 1
ELCL1049	Electrical Theory 1
ELCL1050	Instrumentation 1
ELCL1051	Electrical and Workplace Safety
COMM1007	College English

### SEMESTER 2

Code	Course Name
ELCL1057	Residential Prints and Electrical Safety Code 2
ELCL1058	Electrical Installation Methods 2
ELCL1059	Electrical Theory 2
ELCL1060	Instrumentation 2
ELCL1061	Electronics
GNED	General Education Elective

## YOUR CAREER

Graduates of the program bring a wide range of skills to future employers. This program increases your marketability and knowledge of the electrical industry. You may also be interested in continuing on to a two-year or three-year program at George Brown College.

## ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

\*\* Mature Student status (19 years of age or older and no OSSD)

Mature Students may take the Admissions Assessment<sup>3</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>4</sup> and Math<sup>5</sup>.

Please note that George Brown is committed to ensuring that applicants will succeed in their program of choice and meeting the minimum requirements does not guarantee admission to the program. Applicants may be required to have grades higher than the minimum requirements stated.

## COURSE EXEMPTIONS

College or university credits may qualify you for course exemptions. Please visit [georgebrown.ca/transferguide](http://georgebrown.ca/transferguide) for more information.

## INTERNATIONAL STUDENTS

Visit the International Admissions<sup>6</sup> page for more information.

## CONTACT US

### School of Apprenticeship and Skilled Trades

Phone: 416-415-5000, ext. 6711

Email: [bmulveney@georgebrown.ca](mailto:bmulveney@georgebrown.ca)

Room: Casa Loma Campus, Room E308

For more information about George Brown College, you may also call the Contact Centre at 416-415-2000 (TTY 1-877-515-5559) or long distance 1-800-265-2002.

## VISIT OUR CAMPUS

Do you have questions about this program or your career options? Join us for an on-campus Information Session. You'll have the opportunity to meet our friendly instructors and staff, ask questions and experience what it's like to be in a George Brown College classroom.

Sign up for an Information Session<sup>7</sup>.

## LINKS REFERENCE

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T167&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>4</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>5</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>6</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>7</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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# HEATING, REFRIGERATION AND AIR CONDITIONING TECHNICIAN PROGRAM (T160)

<b>PROGRAM NAME</b>	Heating, Refrigeration, and Air Conditioning Technician
<b>COURSE CODE</b>	T160
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades
<b>CENTRE</b>	Construction Engineering Technology
<b>LOCATION</b>	Casa Loma Campus
<b>DURATION</b>	2 years (4 semesters)
<b>STARTING MONTH</b>	September, January
<b>CREDENTIAL</b>	Ontario College Diploma
<b>YEAR OF STUDY</b>	2020-2021
<b>METHOD OF STUDY</b>	FT
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>

## TUITION

\$3,772.00 \*

## ADDITIONAL COST

\* Amounts listed are the total of tuition, materials, student service and ancillary fees for the first two semesters of programs starting in Fall **2019**. Fees are subject to change for programs starting in Fall 2020 and at later dates.

**International students:** Visit the International Fees and Related Costs<sup>2</sup> page for more information.

## FINANCIAL ASSISTANCE

This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.

Rising fuel costs, indoor air quality and climate change are all contributing factors in raising awareness of the true cost of energy. There is a great need for energy-efficient building environmental system design, construction and maintenance.



In the Heating, Refrigeration and Air Conditioning Technician program students will:

- Develop the ability to size, install and maintain building environmental systems for the residential and light commercial sector.
- Gain solid skills and knowledge in design, operation and maintenance of environmental systems, in heating, ventilation, air conditioning and refrigeration (HVAC/R).
- Develop practical skills through hands-on experience, working on a wide range of furnaces, air conditioners, refrigeration equipment and other appliances in our labs.
- Gain competency with industry-ready skills in soldering, wiring and electric control circuitry and troubleshooting for HVAC and gas installations.
- Use computer-aided design software to assess building heating and cooling requirements, select appropriate equipment and develop HVAC system drawings and specifications for the residential market.

The program follows industry-standard design practices for environmentally responsible and energy-efficient residential, commercial and industrial systems, as established by the Heating, Refrigeration and Air Conditioning Institute (HRAI), the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and the Canada Green Building Council.

Note: When you enrol in the program in January, you are required to complete semester 2 in the summer (May to August) of the same year in order to continue into semester 3 in the fall.

## PART TIME STUDY OPTIONS

Part-time study options are not available for this program; however, our Continuing Education department offers evening courses and part-time certificate programs in Building/Construction Technologies. See

## PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Relate effectively to heating, refrigeration, and air conditioning supervisors, coworkers, and customers.
2. Work safely and in accordance with all applicable acts, regulations, legislation, and codes to ensure personal and public safety.
3. Select and use a variety of heating, refrigeration, and air conditioning tools and equipment safely and properly.
4. Solve math and applied science problems required to effectively install and maintain heating, refrigeration, and air conditioning systems, and associated components.
5. Prepare and interpret electrical, mechanical, and piping drawings.
6. Install, service, and troubleshoot heating, refrigeration, air conditioning systems, and associated components.
7. Develop strategies for ongoing personal and professional development, that will lead to enhanced work performance and career opportunities, and keep pace with industry changes.

## REQUIRED COURSES

### SEMESTER 1

Code	Course name
HVAC1001	Refrigeration Theory I
HVAC1006	Electrical Fundamentals for HVAC
HVAC1018	Gas Technician III
GSCI1022	Building Science and the Environment
MATH1136	Mathematics for Building Technologies 1
COMM1007	College English

### SEMESTER 2

Code	Course name
HVAC1003	Refrigeration Laboratory Applications
HVAC1008	Electrical Circuit Analysis for HVAC
HVAC1016	Gas Technician II (Part A)
HVAC1022	Understanding Construction Drawings
HVAC2003	Refrigeration Theory II
MATH1146	Mathematics for Building Technologies 2
GNED	General Education Elective

### SEMESTER 3

Code	Course name
HVAC1017	Gas Technician II (Part B)
HVAC2001	Residential HVAC System Design
HVAC2012	Air Conditioning Theory
HVAC2014	Building Code for HVAC
PORT1001	Portfolio
GNED	General Education Elective

### SEMESTER 4

Code	Course name
HVAC1021	Gas Technician II (Part C)
HVAC2006	Air Conditioning Laboratory Applications
HVAC2013	HVAC Computer Applications
COMM1113	Professional Communications for Building Technologies
GNED	General Education Elective

## CAREER OPTIONS

Successful graduates of this diploma program are prepared for a range of positions in the HVAC field. Technicians install, maintain, and repair heating, air conditioning and refrigeration systems for commercial and residential buildings.

Students will also have sufficient training to challenge the Gas Fitter 2 provincial qualification exam\*\* and if successful (75% passing grade) obtain the Gas Fitter 2 certification.

As well, for the course *Building Code for HVAC (HVAC 2014)* delivered in semester 3, we assist students in preparing to challenge the Ontario Ministry of Consumer Affairs and Housing, HVAC House exam.\* Individuals who are successful (75% passing grade) can use this qualification towards obtaining their "Building Code Identification Number" (BCIN)\*\*.

*\*Please note that in addition to passing the HVAC House exam, there are further requirements to qualify for a Building Code Identification Number. For more information on the Building Code Identification Number, please visit the Ontario Building Code website<sup>3</sup>.*

*\*\*The above mentioned qualification exams are administered by the Province of Ontario. George Brown College is not responsible for the administration and/or marking of these exams.*

## YOUR CAREER

Successful graduates of this diploma program are prepared for a range of positions in the HVAC field. Technicians install, maintain, and repair heating, air conditioning and refrigeration systems for commercial and residential buildings.

Other employment opportunities for technicians include sales, system balancing and cost estimating for projects. Experienced technicians may also explore self-employment in the gas heating industry after obtaining a Gas Fitter 2 certification.

## FUTURE STUDY OPTIONS

Graduates of this program are eligible to transfer with advanced standing into Semester 5 of the three-year Heating, Refrigeration and Air Conditioning Technology advanced diploma program (T162)<sup>4</sup>.

## ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

**\*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)**

Mature Students may take the Admissions Assessment<sup>5</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>6</sup> and Math<sup>7</sup>.

Please note that George Brown is committed to ensuring that applicants will succeed in their program of choice and meeting the minimum requirements does not guarantee admission to the program. Applicants may be required to have grades higher than the minimum requirements stated.

**COURSE EXEMPTIONS**

College or university credits may qualify you for course exemptions. Please visit [georgebrown.ca/transferguide](http://georgebrown.ca/transferguide) for more information.

**INTERNATIONAL STUDENTS**

Visit the International Admissions<sup>8</sup> page for more information.

**CONTACT US****School of Apprenticeship and Skilled Trades**

Phone: 416-415-5000, ext. 6711

Email: [bmulveney@georgebrown.ca](mailto:bmulveney@georgebrown.ca)

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Sign up for an Information Session<sup>9</sup>.

**LINKS REFERENCE**

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T160&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.mah.gov.on.ca/Page7393.aspx>

<sup>4</sup><http://www.georgebrown.ca/programs/heating-refrigeration-and-air-conditioning-technology-program-t162/>

<sup>5</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>6</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>7</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>8</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>9</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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## HEATING, REFRIGERATION AND AIR CONDITIONING TECHNOLOGY PROGRAM (T162)

<b>PROGRAM NAME</b>	Heating, Refrigeration, and Air Conditioning Technology	<b>TUITION</b>	\$3,774.00 *
<b>COURSE CODE</b>	T162	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades		* Amounts listed are the total of tuition, materials, student service and ancillary fees for the first two semesters of programs starting in Fall 2019. Fees are subject to change for programs starting in Fall 2020 and at later dates.
<b>CENTRE</b>	Construction Engineering Technology	<b>International students:</b>	Visit the International Fees and Related Costs <sup>2</sup> page for more information.
<b>LOCATION</b>	Casa Loma Campus	<b>FINANCIAL ASSISTANCE</b>	
<b>DURATION</b>	3 years (6 semesters)		This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.
<b>STARTING MONTH</b>	September, January		
<b>CREDENTIAL</b>	Ontario College Advanced Diploma		
<b>YEAR OF STUDY</b>	2020-2021		
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		



Rising fuel costs, indoor air quality and climate change are all factors in raising awareness of the true cost of energy, and the need for energy-efficient building environmental system design, construction and maintenance.

This program has been developed to address the current and future needs of the heating, ventilation, air conditioning and refrigeration (HVAC/R) industry. In the first two years you will study residential and some light commercial systems. In the third year there is an additional focus on commercial systems.

You will develop a firm understanding of the factors involved in designing, building, controlling and maintaining energy-efficient building environmental systems for a wide variety of requirements.

The program covers the basics of air system and hydronic (water) system theory, required to design distribution systems and select appropriate fans, pumps, heating and cooling plants, and system controls for larger buildings.

The program follows industry-standard design practices for environmentally responsible and energy-efficient residential, commercial and industrial systems, as established by the Heating, Refrigeration and Air Conditioning Institute (HRAI), the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and the Canada Green Building Council.

### PART TIME STUDY OPTIONS

Part-time study options are not available for this program; however, our Continuing Education department offers evening courses and part-time certificate programs in Building/Construction Technologies. See [coned.georgebrown.ca](http://coned.georgebrown.ca)

### PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Relate effectively to heating, ventilation, air conditioning and refrigeration supervisors, coworkers and customers.
2. Comply with applicable acts, regulations, legislation, and codes to maintain personal and public safety.
3. Solve scientific, mathematical, and engineering problems related to designing, operating, and installing energy systems for commercial and industrial complexes.
4. Prepare and analyze detailed drawings, and compile technical specifications for energy systems.
5. Design, operate, and install energy systems for commercial and industrial complexes.
6. Develop strategies for ongoing personal and professional development that lead to enhanced work performance and career opportunities, and keep pace with industry changes.

**REQUIRED COURSES****SEMESTER 1**

Code	Course Name
HVAC1001	Refrigeration Theory I
HVAC1006	Electrical Fundamentals for HVAC
HVAC1018	Gas Technician III
GSCI1022	Building Science and the Environment
MATH1136	Mathematics for Building Technologies 1
COMM1007	College English

**SEMESTER 2**

Code	Course Name
HVAC1003	Refrigeration Laboratory Applications
HVAC1008	Electrical Circuit Analysis for HVAC
HVAC1016	Gas Technician II (Part A)
HVAC1022	Understanding Construction Drawings
HVAC2003	Refrigeration Theory II
MATH1146	Mathematics for Building Technologies 2
GNEC	General Education Elective

**SEMESTER 3**

Code	Course Name
HVAC1017	Gas Technician II (Part B)
HVAC2001	Residential HVAC System Design
HVAC2012	Air Conditioning Theory
HVAC2014	Building Code for HVAC
PORT1001	Portfolio
GNEC	General Education Elective

**SEMESTER 4**

Code	Course Name
HVAC1021	Gas Technician II (Part C)
HVAC2006	Air Conditioning Laboratory Applications
HVAC2013	HVAC Computer Applications
COMM1113	Professional Communications for Building Technologies
GNEC	General Education Elective

**SEMESTER 5**

Code	Course Name
HVAC3010	Commercial Load Estimating
HVAC3011	Air Distribution Design
HVAC3012	Hydronic System Design
HVAC3020	Quantity Surveying
BLDG3052	Construction Business Management
CADE3012	AutoCAD I

**SEMESTER 6**

Code	Course Name
HVAC3013	AutoCAD for HVAC
HVAC3014	Building Environment Systems Control Laboratory
HVAC3015	Commercial Refrigeration System Design
HVAC3016	Commercial/Industrial Ventilation System Design
HVAC3017	Mechanical Systems Estimating
BLDG2022	Law and Construction Contracts

**CAREER OPTIONS**

On successful completion of this program, students will have sufficient training to challenge the Gas Fitter 2 provincial qualification exam\*\* and if successful (75% passing grade) obtain the Gas Fitter 2 certification.

As well, in the Building Code for HVAC (HVAC 2014) course delivered in Semester 3, we assist students in preparing to challenge the Ontario Ministry of Consumer Affairs and Housing HVAC House exam.\* Individuals who are successful (75% passing grade) can use this qualification towards obtaining their Building Code Identification Number (BCIN)\*\*.

*\*Please note that in addition to passing the HVAC House exam, there are further requirements to qualify for a Building Code Identification Number. For more information on the Building Code Identification Number, please visit the Ontario Building Code website<sup>3</sup>.*

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**YOUR CAREER**

Successful graduates of this advanced diploma program may find employment opportunities in a broad range of disciplines within the industry, including:

- Consulting engineering and architectural firms
- Design/build contractors
- School boards
- Commercial refrigeration installation and maintenance companies
- Building automation and control companies
- Building maintenance
- HVAC/R manufacturing, sales and distribution companies

Graduates may also pursue management careers in the mechanical sector of the construction industry or opt to become self-employed specialty contractors.

**ADMISSION REQUIREMENTS**

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)

- Grade 11 Math (M or U) or Grade 12 (C or U)

## **\*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)**

Mature Students may take the Admissions Assessment<sup>4</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>5</sup> and Math<sup>6</sup>.

Please note that George Brown is committed to ensuring that applicants will succeed in their program of choice and meeting the minimum requirements does not guarantee admission to the program. Applicants may be required to have grades higher than the minimum requirements stated.

## **COURSE EXEMPTIONS**

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## **INTERNATIONAL STUDENTS**

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## **CONTACT US**

### **School of Apprenticeship and Skilled Trades**

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## **VISIT OUR CAMPUS**

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## **LINKS REFERENCE**

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T162&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.mah.gov.on.ca/Page7393.aspx>

<sup>4</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>5</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>6</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>7</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>8</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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## PLUMBING TECHNIQUES PROGRAM (T165)

<b>PROGRAM NAME</b>	Plumbing Techniques	<b>TUITION</b>	\$5,061.00*
<b>COURSE CODE</b>	T165	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades	* Amounts listed are the total of tuition, materials, student service and ancillary fees for the first two semesters of programs starting in fall 2019. Fees are subject to change for programs starting in fall 2020 and at later dates	
<b>CENTRE</b>	Construction Engineering Technology	<b>International students:</b> Visit the International Fees and Related Costs <sup>2</sup> page for more information.	
<b>LOCATION</b>	Casa Loma Campus	<b>FINANCIAL ASSISTANCE</b>	
<b>DURATION</b>	1 year (2 semesters)	This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.	
<b>STARTING MONTH</b>	May		
<b>CREDENTIAL</b>	Ontario College Certificate		
<b>YEAR OF STUDY</b>	2020-2021		
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		

The Plumbing Techniques program covers residential, commercial and industrial applications in the plumbing industry, paying particular attention to residential plumbing. It is a hands-on program that may benefit anyone seeking to enter an apprenticeship or any construction-related career path.

Through hands-on projects you will learn about:

- Tools, materials, equipment and methods used in the plumbing industry
- Estimating materials and labour costs
- Proper use of hand tools and power tools
- Safety practices and procedures associated with these tools

The program includes studying industry standards and building codes while considering health and safety issues and energy conservation.

Projects include:

- Constructing and testing both drain and water systems
- Learning how to install hot water heaters and a variety of residential plumbing fixtures.
- Research on the science of sanitation, water, and the forces acting on a sealed piping system with and without atmospheric pressure applied to it.
- Studying blueprints and learning basic drafting techniques that will enable you to design, comprehend and build plumbing systems.
- A final project will focus on how to maintain the plumbing system you install and those that you may encounter in the future.



### THE INDUSTRY

The construction industry is one of the country's largest employers, and skilled trades workers are among the highest paid and most in demand in Canada.

### PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Work according to contractual obligations; the project manual; and applicable laws, standards, bylaws, and codes.
2. Perform residential plumbing projects effectively and accurately by interpreting and producing basic data in graphic, oral and written formats.
3. Work responsibly and effectively with others and in accordance with appropriate practices, procedures and in compliance with health and safety legislation.
4. Use tools and equipment for basic installation manufacture, and repair of components to required specifications.
5. Contribute to the organizing and planning of residential plumbing installation projects.
6. Solve routine problems related to work environments using a variety of systemic approaches.

### REQUIRED COURSES

#### SEMESTER 1

Code	Course name
BLDG1112	Plumbing Trade Theory
BLDG1113	Plumbing Trade Shop
BLDG1114	Trade Documentation
BLDG1110	Welding Trade Theory
BLDG1111	Welding Trade Shop
COMM1007	College English

**SEMESTER 2**

Code	Course name
BLDG1115	Safety, Hoisting and Rigging
BLDG1116	Plumbing Theory
BLDG1117	Plumbing Practical Techniques
BLDG1118	Plumbing Math
BLDG1119	Blueprints and Graphic Communication
GNED	General Education Elective

**YOUR CAREER**

As a graduate of the program, you can bring entry-level plumbing skills to future employers. You can use this Plumbing Techniques program in pursuing related work in areas such as:

- Plumber
- Steamfitter
- Sprinkler Systems Installer
- Gas Fitter
- Sales and Distribution

**ADMISSION REQUIREMENTS**

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

**\*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)**

Mature Students may take the Admissions Assessment<sup>3</sup> for English and Math, OR may consider upgrading to achieve the credit(s) needed in English<sup>4</sup> and Math<sup>5</sup>.

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**COURSE EXEMPTIONS**

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**INTERNATIONAL STUDENTS**

Visit the International Admissions<sup>6</sup> page for more information.

**CONTACT US****School of Apprenticeship and Skilled Trades**

Phone: 416-415-5000, ext. 6711

Email: [bmulveney@georgebrown.ca](mailto:bmulveney@georgebrown.ca)

Office: Casa Loma Campus, Room E308

For more information about George Brown College, you may also call the Contact Centre at 416-415-2000 (TTY 1-877-515-5559) or long distance 1-800-265-2002.

**VISIT OUR CAMPUS**

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**LINKS REFERENCE**

<sup>1</sup><https://collegeapply.ontariocolleges.ca/?collegeCode=GBTC&programCode=T165&lang=en>

<sup>2</sup><http://www.georgebrown.ca/international/futurestudents/tuitionfees/>

<sup>3</sup><http://www.georgebrown.ca/assessment/admi-pre/>

<sup>4</sup><http://www.georgebrown.ca/upgrading-credits/english-diploma/>

<sup>5</sup><http://www.georgebrown.ca/upgrading-credits/math-diploma/>

<sup>6</sup><http://www.georgebrown.ca/international/futurestudents/howtoapply/>

<sup>7</sup>[http://www.georgebrown.ca/tours\\_technology/](http://www.georgebrown.ca/tours_technology/)

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## WELDING TECHNIQUES PROGRAM (T166)

<b>PROGRAM NAME</b>	Welding Techniques	<b>TUITION</b>	\$8,259.00*
<b>COURSE CODE</b>	T166	<b>ADDITIONAL COST</b>	
<b>SCHOOL</b>	School of Apprenticeship and Skilled Trades		
<b>CENTRE</b>	Construction Engineering Technology		
<b>LOCATION</b>	Casa Loma Campus		
<b>DURATION</b>	1 year (2 semesters)		
<b>STARTING MONTH</b>	September, May		
<b>CREDENTIAL</b>	Ontario College Certificate	<b>FINANCIAL ASSISTANCE</b>	
<b>YEAR OF STUDY</b>	2020-2021		This program is approved for OSAP funding, provided the applicant meets OSAP eligibility criteria.
<b>METHOD OF STUDY</b>	FT		
<b>APPLY TO</b>	Ontario Colleges <sup>1</sup>		



Employment opportunities in the Welding trade span several industries including transportation, petro chemical, oil and gas, aerospace, fabrication, manufacturing, pipelines, mining and construction.

George Brown's Welding Techniques program prepares students with practical, hands-on experience that applies the technical theory and elements of the welding field. Students articulate their technical and essential employability skills through an e-portfolio, based on skill development throughout the program.

At the end of this intense, two-semester program, students will have the opportunity to challenge the shielded metal arc weld test, in accordance with CSA W47.1/W59 standards, in a position(s) of their choosing through the Canadian Welders Bureau. (This test will be voluntary and at an extra cost to the student.)

**This experiential program will provide you the skills to master five of the most common types of welding processes:**

1. **Shielded Metal Arc Welding (SMAW):** This process uses a consumable electrode covered with flux. It is the primary type of welding used in the maintenance and repair industry. Arc welding is usually used to weld iron and steel, although it can also be used for alloys (aluminum, nickel, etc.).

2. **Gas Metal Arc Welding (GMAW):** This welding process uses electricity to melt and join pieces of metal together. It is generally regarded as one of the easiest types of welding to learn. It is also called Gas Metal Arc Welding (GMAW). It can be used to weld a variety of metals such as carbon steel, stainless steel, aluminum, magnesium, copper, bronze, etc.
3. **Gas Tungsten Arc Welding (GTAW):** The process uses a non-consumable tungsten electrode that delivers the current to the welding arc. The tungsten and weld puddle are protected and cooled with an inert gas, typically argon or helium. It is most commonly used for welding stainless steel and non-ferrous metals like aluminum, magnesium and copper alloys.
4. **Plasma Arc and Oxyfuel Cutting:** This process utilizes an electrode and compressed gas, forced at high speeds through a nozzle, usually copper, to cut metal, primarily mild steel, stainless steel and aluminum. Oxyfuel cutting uses fuel gases combined with oxygen to cut metals, usually steel.
5. **Fabrication:** Metal fabrication is the building of metal structures by cutting, bending, and assembling processes. It is a value added process that involves the construction of machines and structures from various raw materials.

### THE INDUSTRY

Welding is a high demand trade, one that is critical for the success of many major development projects in every province across the country. Employment opportunities span several industries including:

- Transportation
- Petrochemical
- Oil and Gas
- Aerospace
- Fabrication
- Manufacturing



- Pipelines
- Mining
- Construction

The Bureau of Labour Statistics paints a very bright future for welding careers in Ontario. Between 2010 and 2025, the industry is expected to see around 15 percent growth, which is higher than the rate of growth for most other occupations. Welding positions are going to be incredibly important to both the provincial and national economy over the course of the next decade.

## PROGRAM STANDARDS AND LEARNING OUTCOMES

The graduate has reliably demonstrated the ability to:

1. Perform work responsibly and in compliance with the Occupational Health and Safety Act and industry processes and procedures, including demonstrating learned knowledge of WHMIS.
2. Interpret engineering drawings and blueprints to produce basic graphics and welding projects as required by industry.
3. Select, plan, and demonstrate sustainable metal fabrication operations using industrial metal fabrication machinery and emerging technologies.
4. Perform basic technical measurements and welding functions accurately, using appropriate equipment and welding techniques.
5. Create welds on various types of materials and joints in the major welding positions to industrial standards and codes.
6. Use shop tools and equipment to manufacture, assemble, maintain and repair components according to required specifications and industry standards.
7. Interact effectively and professionally in shop environments, both independently and with fellow workers and other tradespeople.
8. Assess weld quality and implement corrective action where required to follow quality control and quality assurance procedures and meet organizational standards and requirements.
9. Create a professional development plan that addresses one's strengths and areas for growth in the greater context of the welder profession.

## REQUIRED COURSES

### SEMESTER 1

Code	Course Name
WELD1010	Blueprint Reading and Production for Welders
WELD1011	Mathematics for Welders
WELD1012	Shielded Metal Arc Welding I
WELD1013	Gas Metal Arc Welding I
WELD1014	Bronze Welding, Oxyfuel Cutting and Plasma Arc Cutting
WELD1015	Metallurgy for Welders I
COMM1007	College English

### SEMESTER 2

Code	Course Name
WELD1112	Shielded Metal Arc Welding II
WELD1113	Gas Metal Arc Welding II
WELD1114	Gas Tungsten Welding
WELD1115	Metallurgy for Welders II
WELD1116	Fabrication
WELD1117	Portfolio
WELD1118	CAD for Welders
GNED	General Education Elective

### YOUR CAREER

Graduates of the program bring a wide range of welding skills to future employers. This program increases your marketability and knowledge of the welding trade and provides a good understanding of the safety practices relevant to the work performed. Welders are always going to be in demand in the manufacturing industry of Ontario because of how important they are to the manufacturing process. Most of the basic welding skills are the same across all industries, so welders are able to shift from one industry to the next – meaning that there is always a constant supply of work.

### ADMISSION REQUIREMENTS

Applicants are selected on the basis of their academic achievement, including the required courses, and any other selection criteria outlined below.

- Ontario Secondary School Diploma or equivalent\*\*
- Grade 12 English (C or U)
- Grade 11 Math (M or U) or Grade 12 (C or U)

### \*\* MATURE STUDENT STATUS (19 YEARS OF AGE OR OLDER AND NO OSSD)

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### CONTACT US

#### Denise Devlin-Li, Chair

School of Apprenticeship and Skilled Trades  
 Email: [Denise.Devlin-Li@georgebrown.ca](mailto:Denise.Devlin-Li@georgebrown.ca)  
 Phone: 416-415-5000, ext. 4688

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