

HEATING, REFRIGERATION AND AIR CONDITIONING TECHNICIAN

Program: HRAC

Credential: Ontario College Diploma, Co-op

Delivery: Full-time

Work Integrated Learning: 1 Co-op Work Term

Length: 4 Semesters, plus 1 work term

Duration: 2 Years

Effective: Fall 2019

Location: Barrie

Description

Students gain the required skills to install, service, and maintain the environmental systems for residential buildings, including working with a variety of gas appliances, as well as an introduction to refrigeration and air conditioning. Students examine energy efficient and environmentally friendly approaches; and read, utilize, and produce Heating, Refrigeration, and Air Conditioning (HRAC) drawings using industry standard software. Students gain the required skills to obtain the Technical Standards and Safety Authority (TSSA) Gas Technician 2 (G.2) exams in order to become a licensed gas technician.

Career Opportunities

Graduates are primarily prepared for a career as a gas technician. However, employment may also be found in the areas of technical support and sales within the HRAC industry. Graduates are introduced to transferable practical skills, as well as industry relevant applied math and science, in order to facilitate the transition into a variety of other trades (such as sheet metal, air conditioning, refrigeration, plumbing, and pipe fitting). For those who want to work in these trades, an apprenticeship is required after graduation.

Program 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, which will lead to enhanced work performance and career opportunities, and keep pace with industry changes;
8. employ environmentally sustainable practices within the profession;

9. apply basic entrepreneurial strategies to identify and respond to new opportunities.

Practical Experience

Co-operative Education is a mandatory component of all Co-op programs at Georgian College; it has been designed as a process by which students integrate their academic education with work experience related to their programs of study. This integration affects much more than simply earning a salary, including the adjustment to the work environment and the development of professionalism. It also reinforces skills and theory learned during academic semesters, develops professional contacts, job knowledge and career path, improves human relations and communication skills, and promotes personal maturity and financial independence.

Students are requested to register, attend and participate in their scheduled co-operative education classes. These classes are scheduled for all first year students and are expected to be completed in order for students to proceed successfully to their first co-op work experiences. To ensure students are eligible to proceed onto any co-op work experience, students should refer to Promotional Status and Eligibility for Co-op as outlined in the College Calendar. Co-op policies and procedures can be located on our website:

www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/ (<http://www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/>)

Georgian College follows the Co-operative Education guidelines set out by the Canadian Association for Co-operative Education (CAFCE) and Education at Work Ontario (EWO) by supporting the learning outcomes designed for the program specific graduate profile and curriculum as set out by the Ministry of Advanced Education and Skills Development.

External Recognition

This program is accredited by the Canadian Association for Co-operative Education.

The Program Progression

Fall Intake

- **Sem 1:** Fall 2019
- **Sem 2:** Winter 2020
- **Sem 3:** Summer 2020
- **TSSA G2 Exam:** Summer 2020
- **Work Term 1:** Fall 2020
- **Sem 4:** Winter 2021

Articulation

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at <http://www.georgiancollege.ca/admissions/credit-transfer/>

Admission Requirements

OSSD or equivalent, with

- Grade 12 English (C or U)
- Grade 12 Mathematics (C or U)

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: www.georgiancollege.ca/admissions/policies-procedures/ (<http://www.georgiancollege.ca/admissions/policies-procedures/>)

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit Transfer Centre website for details:

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

Additional Information

Gas Technician work in Ontario requires Gas Technician license (Ontario Certificate of Qualification), which is governed by Technical Standards and Safety Authority (TSSA). The college facilitates Gas Technician 3 (G.3) and Gas Technician 2 (G.2) Ontario Certificate of Qualification Examinations on campus at the end of the first and third semesters, respectively. The cost of each examination is not included in the tuition fee.

Students must have successfully completed the TSSA Gas Technician 3 (G.3) exam prior to going out on their co-op work term.

Gas Technician (GAST) program students wanting to transfer to the Heating, Refrigeration and Air Conditioning (HRAC) program are required to:

- meet graduation requirements of the Gas Technician (GAST) program
- meet the admission requirements of the Heating, Refrigeration and Air conditioning (HRAC) program including a 12C or U math course or equivalent
- complete and submit a request for program change form

Successful applicants will be exempted from the first 3 semesters of the Heating, Refrigeration and Air Conditioning (HRAC) program.

Graduation Requirements

18 Program Courses
2 Communications Courses
3 General Education Courses
1 Co-op Work Term

Graduation Eligibility

To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Program Tracking

| Semester 1 | | Hours |
|--|--|-------|
| Program Courses | | |
| ELEC 1010 | Introduction to Electricity | 70 |
| GAST 1003 | Introduction to Gas Appliances | 70 |
| GAST 1013 | Professional Practices | 28 |
| GAST 1014 | Piping and Tubing Systems | 28 |
| Communications Course | | |
| Select 1 course from the communications list during registration. | | 42 |
| General Education Course | | |
| Select 1 course from the general education list during registration. | | 42 |
| Hours | | 280 |
| Semester 2 | | |
| Program Courses | | |
| ELEC 1011 | Basic Electricity and Controls | 56 |
| FITN 1002 | Fitness and Wellness | 42 |
| GAST 1015 | Gas Appliances | 70 |
| GAST 1017 | Venting | 28 |
| GAST 1020 | Buildings and Air Handling | 28 |
| Communications Course | | |
| Select 1 course from the communications list during registration. | | 42 |
| Hours | | 266 |
| Semester 3 | | |
| Program Courses | | |
| ELEC 1012 | Electrical Troubleshooting Applications | 28 |
| GAST 1016 | Piping, Forced Air and Space Heating | 84 |
| GAST 1018 | Water Heaters and Hydronic Heating | 84 |
| GAST 1019 | Gas Code Applications | 14 |
| General Education Course | | |
| Select 1 course from the general education list during registration. | | 42 |
| Hours | | 252 |
| Semester 4 | | |
| Program Courses | | |
| DRFT 2003 | Drafting Techniques | 42 |
| GNED 1000 | Environmental Concerns | 42 |
| HRAC 2000 | Refrigeration and Air Conditioning 1 | 70 |
| MATH 1007 | Mathematics Techniques | 42 |
| SCIE 2001 | Heating and Air Conditioning Science | 56 |
| General Education Course | | |
| Select 1 course from the general education list during registration. | | 42 |
| Hours | | 294 |
| Total Hours | | 1092 |
| Co-op Work Term | | Hours |
| COOP 1029 | HRAC Work Term (occurs after Semester 3) | 560 |
| Hours | | 560 |
| Total Hours | | 560 |

Graduation Window

Students unable to adhere to the program duration of two years (as stated above) may take a maximum of four years to complete their credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to

*add or delete programs, options, courses, timetables or campus locations
subject to sufficient enrolment, and the availability of courses.*