GAS TECHNICIAN

Program Outline

Major: GAST
Length: 1 Year
Delivery: 3 Semesters
Credential: Ontario College Certificate
Effective: 2017-2018
Location: Barrie, Owen Sound
Start: Fall (Barrie, Owen Sound)

Description
Students train on the theoretical and practical skills required to obtain the Technical Standards and Safety Authority (TSSA) Gas Technician 3 (G.3) and Gas Technician 2 (G.2) certifications. Students study workplace safety, tools, characteristics of natural gas, codes/regulations, basic electricity, technical specifications, customer relations, basic piping systems, and an introduction to gas appliances. Further on, students study advanced piping/tubing systems, electricity, controls, systems, appliances, gas meters, pressure regulators, gas-fired refrigerators, conversion burners, water heaters, forced warm air heating systems, hydronic heating systems, space heating, venting practices, forced air add-on devices, and air handling.

Career Opportunities
Graduates are primarily prepared for a career as a gas technician. Employment may also be found in the areas of technical support and sales within the industry. There are also a number of apprenticeships that graduates may pursue in areas such as sheet metal, refrigeration, plumbing, and pipe fitting. For those who want to work in these trades, an apprenticeship is required after graduation. By the end of the program students are eligible to write their TSSA Gas Technician 3 (G.3) and Gas Technician 2 (G.2) exams in order to become fully qualified and licensed technicians.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- use industry specific customer relations practices in order to relate effectively to coworkers and customers;
- complete all work in accordance with applicable acts, regulations, legislation, and codes to ensure personal safety and enhance the safety of the public;
- promote safe handling, combustion, and efficiency with natural gas and propane as well as their related appliances;
- adhere to proper sequences of operations for heating systems and associated components by referencing and following technical manuals, specifications, schematics, drawings, and graphs;
- select and use hand tools and operate test equipment for their intended purposes;
- employ the basic electrical skills required in order to install, service, and troubleshoot gas appliances;
- solve problems related to the installation and servicing of heating appliances by drawing on an understanding of mechanical systems within a building envelope;
- install, service, maintain, and troubleshoot heating systems and their related components;
- identify and incorporate strategies for ongoing personal and professional development that will lead to enhanced work performance and career opportunities, and keep pace with industry changes;
- employ environmentally sustainable practices within the profession;
- apply basic entrepreneurial strategies to identify and respond to new opportunities.

The Program Progression:

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Fall Intake - Barrie, Owen Sound

Sem 1 | Sem 2  | Sem 3
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Fall  | Winter | Summer
2017  | 2018   | 2018
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Admission Requirements:

OSSD or equivalent with
- Grade 12 English (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/

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/

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.

Gas Technician 3 (G.3) and Gas Technician 2 (G.2) Ontario Certificates of Qualification are not graduation requirements for this program.

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:
13 Mandatory Courses
2 Communications Courses
2 General Education Courses

Graduation Eligibility:
To graduate from this program, the passing weighted average for promotion through each semester, and to graduate is 60%. Additionally, a student must attain a minimum

of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Mandatory Courses
ELEC1010 Introduction to Electricity
ELEC1011 Basic Electricity and Controls
ELEC1012 Electrical Troubleshooting Applications
FITN1002 Fitness and Wellness
GAST1003 Introduction to Gas Appliances
GAST1013 Professional Practices
GAST1014 Piping and Tubing Systems
GAST1015 Gas Appliances
GAST1016 Piping, Forced Air and Space Heating
GAST1017 Venting
GAST1018 Water Heaters and Hydronic Heating
GAST1019 Gas Code Applications
GAST1020 Buildings and Air Handling

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

General Education Courses
To be selected from College list

Course Descriptions:
ELEC1010 Introduction to Electricity 70.0 Hours
In this course, students identify electrical safety hazards, safe working techniques, procedures, and applicable codes. Students study basic electrical theory and concepts and the components and operation of a simple electrical circuit. In addition, students examine principles of basic electromagnetism, the theory of direct and alternating current, and basic transformer theory and operation. The required practical electrical skills, such as measuring supply voltage, load resistance, and current flow are covered in the lab.

ELEC1011 Basic Electricity and Controls 56.0 Hours
In this course, students examine the function and features of electric power supply systems including safety measures and applied standards pertaining to the work of a gas technician. Students learn to read and interpret electrical drawings in order to apply the fundamental principles of electric control components. Students apply the practical skills of troubleshooting electrical circuits and controls in the lab.
P- ELEC1010 Introduction to Electricity

ELEC1012 Electrical Troubleshooting Applications 28.0 Hours
In this course, students troubleshoot problems as they apply to real life scenarios of installing, maintaining, and servicing natural gas and propane appliances. Students are introduced to techniques of following control signals, inspecting the functionality of operating controls and safety controls. In this course, students use their previous knowledge of interpreting electrical drawings and build on this knowledge to be able to do basic electrical troubleshooting with minimum or no supervision in the field.
P- ELEC1011 Basic Electricity and Controls

FITN1002 Fitness and Wellness 42.0 Hours
This course will provide students with the knowledge, skills and abilities necessary to integrate healthy living strategies in a variety of recreational settings. Students will conduct a nutrition, fitness and wellness inventory and analysis. A diversity of recreation and fitness initiatives will be explored through self-driven and planned activities. There will be gym sessions connected with this course.

GAST1003 Introduction to Gas Appliances 70.0 Hours
In this course, students identify the properties and characteristics of natural gas and propane with emphasis on the safe handling. Students compare different types of venting systems, the operation and application of various burners, pilots, ignition systems, and temperature sensing devices. Students differentiate and explain the difference between controls and safeties, non-vented and vented gas appliances. Students practice skills of safely reactivating natural gas and propane appliances.

GAST1013 Professional Practices 28.0 Hours
In this course, students examine customer relations as well as a variety of professional skills that are important for gas technicians. Students identify and examine workplace safety and the interpretation of applicable codes, acts and regulations. Students also study technical manuals, specifications, schematics, drawings and graphs in order to learn the relationship between mechanical and building systems.

GAST1014 Piping and Tubing Systems 28.0 Hours
Students apply the theoretical and practical skills that gas technicians require in order to select and use the different types of piping, tubing, valves, and connectors used to construct gas distribution systems. Students learn to correctly measure and size gas piping systems for a variety of applications and interpret applicable codes in order to properly test gas piping systems to ensure safe and efficient operation.

GAST1015 Gas Appliances 70.0 Hours
In this course, students identify advanced concepts related to gas appliances. In addition, students identify theoretical fundamentals related to the installation, servicing, and maintenance of non-vented gas appliances (including barbecues), domestic gas-fired refrigerators and conversion burners.

P- GAST1003 Introduction to Gas Appliances

GAST1016 Piping, Forced Air and Space Heating 84.0 Hours
In this course, students examine the installation, service, and maintenance of forced warm air heating systems. In addition, students work with space-heating and decorative appliances in the lab. The student identifies and describes installation requirements for forced-air furnaces and space heating appliances; mechanical and electrical components on forced-air furnaces and space heating appliances; and the procedures for servicing said components.
P- GAST1015 Gas Appliances

GAST1017 Venting 28.0 Hours
In this course, students study the theoretical concepts of removing combustion products from appliances; principles of selecting proper venting material and size; alternative ways of configuring venting systems; and factors that effect the capacity of a venting system. Students identify and explain appliance categories based on the concepts of flue loss and vent pressure. Students are also introduced to principles of inspecting existing venting systems and calculating combustion air requirements in different types of buildings.
P- GAST1015 Gas Appliances

GAST1018 Water Heaters and Hydronic Heating 84.0 Hours
In this course, students examine the skills and knowledge required to install, service, and, maintain water heaters, combo units and portable water heaters. In addition this course covers the installation, service, and maintenance of gas fired hydronic heating appliances as well as those accessories that form an integral part of these appliances. Mechanical and electronic controls related to water heaters and hydronic heating devices are also examined.

GAST1019 Gas Code Applications 14.0 Hours
In this course, the student judges the result of applying, assesses risks of not applying, and argues for an against the pertinence of specific laws of the Natural Gas and Propane Installation Code and Propane Storage and Handling Code as they apply to prescribed study cases.
P- GAST1015 Gas Appliances

GAST1020 Buildings and Air Handling 28.0 Hours
In this course, students examine the components of the building as a system; the principles of heat, air, and moisture flow; methods for calculating heat loss and testing for negative building; and indoor air quality. In addition, the student identifies the principles of selecting, installing, and maintaining appropriate air filters, air cleaners, humidifiers, and add-on cooling coils. The student identifies and discusses the theoretical principles of air handling.

Course Description Legend
P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.