PLUMBING TECHNIQUES

Program Outline

Major: PLTQ
Length: 1 Year
Delivery: 2 Semesters
Credential: Ontario College Certificate
Effective: 2017-2018
Location: Midland
Start: Fall (Midland)

Description
Students are provided with the theoretical and practical training to perform most basic plumbing techniques. Students will be exposed to topics including health and safety, reading of drawings, applied math, communications, plumbing code, plumbing theory, practical application and installation practices.

Career Opportunities
At the completion of the program, students are ready to apply for work as a Plumber's helper or apprentice, or work in related fields. Graduates pursuing an apprenticeship may find a range of occupations in the plumbing field, including construction, maintenance, industrial as well as service related opportunities such as wholesale and retail and municipal waterworks. Graduates choosing to continue their education will find opportunities HVAC, gas fitting and municipal utilities operation.

Program Learning Outcomes
The graduate has reliably demonstrated the ability to:

- work according to contractual obligations; the project manual; and applicable laws, standards, bylaws, and codes;
- perform residential plumbing projects effectively and accurately by interpreting and producing basic data in graphic, oral and written formats;

- work responsibly and effectively with others and in accordance with appropriate practices, procedures and in compliance with health and safety legislation;
- use tools and equipment for basic installation manufacture, and repair of components to required specifications;
- contribute to the organizing and planning of residential plumbing installation projects;
- solve routine problems related to work environments using a variety of systemic approaches;
- respond to environmental issues related to the plumbing trade.

The Program Progression:

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Fall Intake - Midland

Sem 1 | Sem 2
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Fall  | Winter
2017  | 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/

Graduation Requirements:

10 Mandatory Courses
1 Communications Course
1 General Education Course

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

DRFT1015 Plumbing Drafting and Blueprint Reading
ENVR1003 Environmental Health and Safety
MATH1018 Introduction to Technical Mathematics
PLMB1000 Plumbing Theory 1
PLMB1001 Plumbing Practical 1
PLMB1002 Plumbing Codes and Standards 1
PLMB1003 Plumbing Theory 2
PLMB1004 Plumbing Practical 2
PLMB1005 Plumbing Codes and Standards 2
WETC1013 Welding and Cutting Processes

Communications Course

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

General Education Course

To be selected from College list

Course Descriptions:

DRFT1015 Plumbing Drafting and Blueprint Reading 42.0 Hours

This basic drafting and blueprint course is designed to give the student the ability to design simple trade related drawings acceptable to a tradesperson. Drawings in both the plan view and elevation view will be practiced as well as using a complete set of building plans for various building projects. Producing drain plans using proper instruments such as pencils, set squares, T squares and the architects scale will be demonstrated. Producing elevation views showing mode of venting and drainage systems will also be demonstrated. Read and use shop drawings. The student will be expected to identify different drawings in a set of plans including Architectural,

Mechanical, Electrical, and Structural plans as well as the Specifications and use them for material takeoff, layout and installation.

ENVR1003 Environmental Health and Safety 42.0 Hours
This course provides an overview of the requirements of current legislation and standards pertaining to environmental health and safety in the workplace. Health and safety management systems, hazardous materials management, WHMIS, biological, physical and chemical hazards, environmental monitoring devices, confined space entry, personal protective equipment, and emergency response will be examined.

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

PLMB1000 Plumbing Theory 1 42.0 Hours
This course provides the student the ability to identify the most common pipe and fittings used for plumbing installations. Terminology of design, manufacture and sizing as well as approved uses of different materials will be taught. Steel, cast iron, various plastics, copper and glass approved for drainage waste and vent systems as well as potable water systems will be discussed. How to correctly join various dissimilar materials is introduced. Correct supports and hangers specific for different materials and positions including minimum spacing will be taught. Requirements for cleanouts regarding, size, distance and types are identified. Prohibited fittings and connections according to the code will be specified. Storm and sanitary system design will be explained including appropriate termination and minimum sizes stressed according to code. Trade terminology for different drainage systems will be explained and why only one is permitted today by code.

PLMB1001 Plumbing Practical 1 42.0 Hours
In this hands-on practical course, the student will be instructed in the safe and proper use of hand tools and power equipment. The student will be expected to use, care and maintain various tools necessary to perform a plumbing related task. Students will be expected to measure, cut, and make a quality joint for all the various plumbing pipe materials and fittings including steel, copper, various plastics and glass using appropriate tools in a safe manner. Calculations for offsets of varying degrees, preparing and assembling of projects using skills learned from the other courses in the program will be demonstrated. Skills learned from the other courses in the program will be demonstrated by the student by drawing, designing and assembling a simple residential drainage, waste and vent system or part of such system either alone or with a partner.

PLMB1002 Plumbing Codes and Standards 1 42.0 Hours
Reading and interpreting The Ontario Building Code Part 7 (Plumbing) is the objective of this course. How to reference and find related code requirements will be practiced. The student will be expected to refer to the code for proof of reference constantly throughout the entire Plumbing Techniques Program.

PLMB1003 Plumbing Theory 2 42.0 Hours
This course includes a review of Theory 1 highlighting the critical concepts and their applications. Trade terminology for different drainage systems will be explained and why only one is permitted today by code. Floor drains, funnel floor drains, priming methods and venting exceptions are discussed. Various plumbing traps and types, sizing, trap seal loss and fixture outlet pipes are explained. Sizing the drainage system and grading or sloping according to code will be shown. Venting of the drainage system according to acceptable practice and code will be discussed and demonstrated in this course. Types of individual vents, branch vents with pertinent rules and sizes are stressed. Group vents, dual vents, wet vents, and circuit vents are explained in depth. Roof flashings and vent terminals are discussed at length.
P- PLMB1000 Plumbing Theory 1 and P- PLMB1002 Plumbing Codes and Standards 1

PLMB1004 Plumbing Practical 2 42.0 Hours
This hands-on course will prepare the student to make quality joints as required for shop projects. Joint preparation, purpose of flux, proper tip use and heat will be shown. Cutting mild steel using a torch as well as soldering copper using both hard and soft solders will be demonstrated and practiced. Calculations for offsets of varying degrees, preparing and assembling of projects using skills learned from the other courses in the program will be demonstrated. Skills are required for the rigging of loads in order to move or hoist materials, equipment or tools in a safe and professional manner according to the O.H.S.A. and C.S.A.O. Skills learned from the other courses in the program will again be demonstrated by the student by drawing, designing and assembling a simple residential drainage, waste and vent system or part of such system either alone or with a partner.
P- PLMB1001 Plumbing Practical 1

PLMB1005 Plumbing Codes and Standards 2 42.0 Hours
This course will continue with the investigation and interpreting of The Ontario Building Code Part 7 (Plumbing). How to reference and find related code requirements that will now be directed at the in class projects and assignments in Plumbing Practical II. The student will be expected to continue to refer to the code for proof of reference constantly throughout the entire program.
P- PLMB1000 Plumbing Theory 1 and P- PLMB1002 Plumbing Codes and Standards 1

WETC1013 Welding and Cutting Processes 42.0 Hours

In this course, students are introduced to the principles and fundamental processes of arc welding, oxy-fuel cutting, power units and their controls. Emphasis is placed on the safe set up and operation of oxy-fuel welding and cutting equipment.

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.