

Area of Interest: Construction and Skilled Trades

## Plumbing Techniques - Apprenticeship

Ontario College Certificate

24 Weeks

Ottawa Campus

Academic Year: 2022/2023

Program Code: 0522X01FWO

### Our Program

#### **Become a skilled journeyman for a career in the plumbing industry.**

Applicants to the Plumbing Techniques - Apprenticeship Ontario College Certificate program must:

- be currently employed in the trade
- be formally registered as apprentices with the Ministry of Labour, Training and Skills Development (MLTSD)
- have a valid Offer of Classroom Training from the Ministry of Labour, Training and Skills Development that includes your Ministry Client ID and approved Class Number

Eligibility is determined by the Ministry of Labour, Training and Skills Development.

Plumber is a compulsory skilled trade in Ontario and requires a Certificate of Qualification to work in Ontario. For employment outside Ontario, a plumber must have a Red Seal Endorsement (RSE).

Learn more about apprenticeships, visit <http://ontario.ca/page/skilled-trades> for detailed information.

#### **For Registered Apprentices:**

This program fulfills the in-class requirements for your apprenticeship. It is divided into three levels (Beginner, Intermediate, Advanced) where you alternate between going to class for 8 weeks and honing your skills through working in the field for 8 - 12 months.

During your on-campus labs you learn:

- plumbing theory and design
- safety and regulations guiding the installation of plumbing systems
- how to assemble, install and repair the piping, fittings and fixtures

Industry professionals also teach you how to fabricate water distribution and drain waste/vent systems.

At the end of this program, you qualify to write the Ontario College of Trades Certificate of Qualification as well as the nationally-recognized Red Seal Endorsement exam to qualify to work as a plumber across Canada. Once qualified you can enter the industry as a journeyman in the plumbing industry.

#### **SUCCESS FACTORS**

This program is well-suited for students who:

- Enjoy a hands-on approach to learning.
- Are self-motivated and able to work independently.

- Take pride in improving the quality and efficiency of their work.

## Employment

Apprentices are employed as plumbers working for plumbing contractors, mechanical contractors, municipalities, plumbing retailers, plumbing wholesalers and consulting firms. Graduates may also become self-employed.

## 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 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 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.
- Use cutting and welding equipment and accessories for construction, operation, assembly and disassembly as it pertains to plumbing systems.
- Identify installation procedures and components for a variety of Specialized Plumbing Systems.
- Accurately interpret the Ontario Building Code (OBC) and National Building Code (NBC) as it pertains to plumbing systems.

## Program of Study

Level: 01 (Basic)	Courses	Hours
DRA0710	Trade Documentation - Level 1	24.0
MAT0710	Trade Calculations - Level 1	24.0
PLU0710	Workplace Safety, Rigging and Hoisting	24.0
PLU0711	Plumbing Systems 1	96.0
PLU0712	Tools and Piping Methods	48.0
WEL0710	Welding for Plumbers 1	24.0
Level: 02 (Intermediate)	Courses	Hours
DRA0720	Trade Documentation - Level 2	24.0
MAT0720	Trade Calculations - Level 2	24.0
PLU0721	Plumbing Systems 2	120.0
PLU0722	Drainage Waste and Vent Piping Systems	48.0

WEL0720	Welding for Plumbers 2	24.0
<b>Level: 03 (Advanced) Courses</b>		<b>Hours</b>
DRA0730	Trade Documentation - Level 3	48.0
PLU0731	Plumbing Systems 3	144.0
PLU0732	Process Piping Systems	48.0

### **Fees for the 2022/2023 Academic Year**

Tuition Fees: \$400 per level.

Incidental Fee: \$150 per level.

Information Technology Fee: \$43.86 per level.

Books and supplies can be purchased at the campus bookstore.

Students are responsible for parking and locker fees, if applicable.

All students are responsible to supply and use their own personal protective equipment (such as CSA-approved safety footwear, non-tinted protective eyewear, hearing protection, gloves, hard hat) as required in each lab environment.

### **Admission Requirements for the 2023/2024 Academic Year**

#### **College Eligibility**

- Ontario Secondary School Diploma (OSSD) or equivalent; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program).

#### **Program Eligibility**

- Prospective students must be registered apprentices with the Ministry of Labour, Training and Skills Development and must be a member in good standing with Skilled Trades Ontario (STO).
- Eligibility is determined by the Ministry of Labour, Training and Skills Development.

### **Admission Requirements for 2022/2023 Academic Year**

#### **Program Eligibility**

- Eligibility is determined by the Ministry of Labour, Training and Skills Development.
- Applicants must be formally registered as apprentices and be released by their sponsor to attend the College.

### **Application Information**

#### **PLUMBING TECHNIQUES - APPRENTICESHIP** **Program Code 0522X01FWO**

Registration for Apprenticeship programs takes place through the Ministry of Labour, Training, and Skills Development.

For further information, contact:

Ministry of Labour, Training, and Skills Development

347 Preston Street  
3rd Floor, Suite 310  
Ottawa, ON K1S 3H8

<https://www.ontario.ca/page/start-apprenticeship>

Telephone: 613-731-7100

Toll-free: 1-877-221-1220

## Additional Information

For more information, please contact Greg Gourgon, Program Coordinator, at 613-727-4723, ext. 7249 or <mailto:gourgog@algonquincollege.com>.

## Contact Information

### Program Coordinator(s)

- Gregory Gourgon, <mailto:gourgog@algonquincollege.com>, 613-727-4723, ext. 7249
- Don McMullen, <mailto:mcmulld@algonquincollege.com>, 613-727-4723, ext. 5175

## Course Descriptions

### DRA0710 Trade Documentation - Level 1

Apprentices are introduced to standard drafting tools and instruments which are used to construct drain plans, stack elevations and isometric pipe drawings. Through this work, the apprentice demonstrates his/her knowledge of code requirements regarding the drain waste and venting system. Material lists from the apprentice's stack elevation, drain plan and/or pipe drawings are used for the purpose of pricing through a standard pricing catalogue.

Prerequisite(s): none

Corequisite(s):MAT0710 and PLU0710 and PLU0711 and PLU0712 and WEL0710

### DRA0720 Trade Documentation - Level 2

Apprentices learn to read, interpret and apply information from construction drawings and specifications. Plumbing drawings of various complexities are produced in plan and isometric views. Apprentices learn to write effective job related documents.

Prerequisite(s): DRA0710

Corequisite(s):MAT0720 and PLU0721 and PLU0722 and WEL0720

### DRA0730 Trade Documentation - Level 3

Apprentices learn to read and interpret industrial, commercial and institutional drawings and specifications for plumbing and hydronic systems. Apprentices produce plumbing and hydronic drawings of various complexities in plan and isometric views, and learn to read and interpret bids and contracts.

Prerequisite(s): DRA0720

Corequisite(s):PLU0731 and PLU0732

### MAT0710 Trade Calculations - Level 1

Apprentices apply mathematics to develop solutions relating to plumbing installation. Apprentices calculate offsets, pipe sizing, grade and fall, system dimensions, and material lists using fractions, whole numbers, linear measurements, conversions and square roots.

Prerequisite(s): none

Corequisite(s):DRA0710 and PLU0710 and PLU0711 and PLU0712 and WEL0710

### MAT0720 Trade Calculations - Level 2

Students develop competency in applying area and volume calculations of various geometric shapes, tanks and cylinders. Apprentices learn to calculate percentages, discounts and solve ratio and proportion problems and learn to solve trade related problems involving simple and compound interest.

Prerequisite(s): MAT0710

Corequisite(s): DRA0720 and PLU0721 and PLU0722 and WEL0720

### **PLU0710 Workplace Safety, Rigging and Hoisting**

Apprentices are trained in safe working habits and procedures, in accordance with applicable safety standards and regulations. Apprentices learn to protect self and others through the use of appropriate work dress, personal protective equipment and tools. Apprentices are trained to recognize hazards and learn safe rigging techniques and procedures. Apprentices are also taught the importance of communication and interpersonal relations in the workplace.

Prerequisite(s): none

Corequisite(s): DRA0710 and MAT0710 and PLU0711 and PLU0712 and WEL0710

### **PLU0711 Plumbing Systems 1**

Apprentices learn the basic functions of plumbing systems including piping materials; supports and hangers; drainage terms and definitions; locations of cleanouts; floor drains; fixture traps and fixture drain requirements. Apprentices design basic sanitary drain, waste and vent systems and learn to draw stack elevations and drain plans. Apprentices learn to recognize and use the Ontario Building Code, as it relates to plumbing.

Prerequisite(s): none

Corequisite(s): DRA0710 and MAT0710 and PLU0710 and PLU0712 and WEL0710

### **PLU0712 Tools and Piping Methods**

Apprentices become skilled at selecting, identifying, and using various tools and instruments used in the plumbing industry. Knowledge is applied to building piping projects utilizing various piping materials and joining methods.

Prerequisite(s): none

Corequisite(s): DRA0710 and MAT0710 and PLU0710 and PLU0711 and WEL0710

### **PLU0721 Plumbing Systems 2**

Apprentices are brought up to date on the standard plumbing terms and definitions for the purpose of understanding and interpreting the provincial plumbing code. Code requirements for the drain waste and venting system are studied and practised through stack elevation and drain plans produced by the student. Apprentices are introduced to and study standard plumbing valves, interceptors, water heaters, water meters, sewage ejectors, standard piping tests, properties of water, British Thermal Units (BTU), and the installation of plumbing fixtures and appliances.

Prerequisite(s): PLU0711 and PLU0712

Corequisite(s): DRA0720 and MAT0720 and PLU0722 and WEL0720

### **PLU0722 Drainage Waste and Vent Piping Systems**

Apprentices become skilled at planning, designing, drawing, installing, testing and commissioning a complete four-piece fixture installation.

Prerequisite(s): PLU0711 and PLU0712

Corequisite(s): DRA0720 and MAT0720 and PLU0721 and WEL0720

### **PLU0731 Plumbing Systems 3**

Apprentices learn to define, identify and describe the installation requirements for municipal and private water supplies and sewage disposal systems, water conditioning, water hammer, water distribution pipe sizing, cross connection and back flow prevention, standpipe and sprinkler systems, roof drain system design, hydronic heating systems, medical gas, natural gas and process piping systems. The differences between the national and provincial plumbing codes are studied.

Prerequisite(s): PLU0721 and PLU0722  
Corerequisite(s):DRA0730 and PLU0732

### **PLU0732 Process Piping Systems**

Apprentices become skilled at completing labs developed to apply various plumbing system principles, such as fabrication, troubleshooting and testing. Through practical applications apprentices learn lifelong lessons of the importance of competency and quality workmanship within the plumbing industry.

Prerequisite(s): PLU0721 and PLU0722  
Corerequisite(s):DRA0730 and PLU0731

### **WEL0710 Welding for Plumbers 1**

Welding is a skill essential to the plumbing trade. Competent welding skills are developed at a basic level. Apprentices are provided with instructions on the safety precautions required when using oxyacetylene welding and cutting equipment. Apprentices are taught principles of flame types and temperatures, metal joining processes, cutting procedures and gain practical skills in cutting and welding in the flat position. Theory and practical instruction are offered in a lab setting.

Prerequisite(s): none  
Corerequisite(s):DRA0710 and MAT0710 and PLU0710 and PLU0711 and PLU0712

### **WEL0720 Welding for Plumbers 2**

Welding is a skill essential to the plumbing trade. Competent welding skills are developed at an advanced level. Apprentices learn to weld basic joints using shielded metal arc welding (S.M.A. W.) process while using safety procedures, and developing knowledge of classifications of types of electrodes. Theory and practical instruction are offered in a lab setting.

Prerequisite(s): WEL0710  
Corerequisite(s):DRA0720 and MAT0720 and PLU0721 and PLU0722