



8984

INSTALLATION OF
PLUMBING AND PIPING
SYSTEMS III (12C)

40S/40E/40M

A Plumbing and Pipe Trades Course

8984 INSTALLATION OF PLUMBING AND PIPING SYSTEMS III 40S/40E/40M

Course Description

A student wanting to develop skills in plumbing and the pipe trades must have knowledge of advanced installation techniques and new green technologies. The student will understand and implement the formulas and calculations he or she has learned to design and lay out a drain-waste-vent (DWV) system, as well as a water supply system. The student will be able to design and install a water supply system and test a system of her or his design.

Goal 1: Describe and apply **health and safety** practices.

GLO 1.1: Describe and apply health and safety practices.

SLO 12C.1.1.1 Demonstrate an understanding of, and adherence to, health and safety practices.

GLO 1.2: Demonstrate an understanding of the ***Trade Safety Awareness Curriculum for Level 1 Apprentices***.

No applicable SLOs.

Goal 2: Demonstrate the **use and management of equipment, tools, and materials**, including those used in **fuel brazing and cutting**.

GLO 2.1: Demonstrate the **use and management of equipment and tools**.

SLO 12D.2.1.1 Apply knowledge and skills related to the safe and appropriate cleaning, maintenance, and management of plumbing tools and equipment.

GLO 2.2: Demonstrate the use and management of **fuel brazing and cutting equipment and tools**.

No applicable SLOs.

Goal 3: Demonstrate an understanding of the **properties and applications** of various types of **pipng and tubing**.

GLO 3.1: Demonstrate an understanding of the **properties and applications** of **pipng and tubing**.

No applicable SLOs.

GLO 3.2: Demonstrate an understanding of the **properties and applications** of **plastic pipng**.

No applicable SLOs.

GLO 3.3: Demonstrate an understanding of the **properties and applications** of **copper tubes and tubing**.

No applicable SLOs.

GLO 3.4: Demonstrate an understanding of the **properties and applications** of **steel pipng**.

No applicable SLOs.

GLO 3.5: Demonstrate an understanding of the **properties and applications** of **cast iron pipng**.

No applicable SLOs.

GLO 3.6: Demonstrate an understanding of the **properties and applications** of **glass pipng**.

No applicable SLOs.

GLO 3.7: Demonstrate an understanding of the **properties and applications** of **asbestos-cement pipng**.

No applicable SLOs.

Goal 4: Demonstrate an understanding of the **properties and applications of various materials (other than pipng and tubing)** used in plumbing and the pipe trades.

GLO 4.1: Demonstrate an understanding the **properties and applications of various materials (other than pipng and tubing)** used in plumbing and the pipe trades.

No applicable SLOs.

Goal 5: Demonstrate an understanding of the **design and layout of piping systems.**

GLO 5.1: Demonstrate an understanding of the **design and layout of piping systems.**

No applicable SLOs.

Goal 6: Demonstrate an understanding of the **joining, fabrication, and installation** of piping systems, including **hoisting, lifting, and rigging, and access equipment.**

GLO 6.1: Demonstrate an understanding of the **joining and fabrication** of piping systems.

No applicable SLOs.

GLO 6.2: Demonstrate an understanding of the **installation** of piping systems.

No applicable SLOs.

GLO 6.3: Demonstrate an understanding of **hoisting, lifting, and rigging.**

No applicable SLOs.

GLO 6.4: Demonstrate an understanding of **access equipment.**

No applicable SLOs.

Goal 7: Demonstrate an understanding of the **documentation and testing** of piping systems.

GLO 7.1: Demonstrate an understanding of the **documentation and testing** of piping systems.

SLO 12C.7.1.1 Demonstrate the ability to test a water supply system and document the test procedure.

Goal 8: Describe and demonstrate the transferable **cross-curricular** knowledge and skills as they pertain to plumbing and the pipe trades.

GLO 8.1: Read, interpret, and communicate **information**.

SLO 12C.8.1.1 Demonstrate the knowledge, skills, and attitudes to read, interpret, and communicate information used in plumbing and the pipe trades (i.e., technical information, technical manuals, permits, codes and regulations, bills of lading, invoices, manufacturers' directions, and specifications).

GLO 8.2: Apply knowledge and skills from **mathematics**.

No applicable SLOs.

GLO 8.3: Apply knowledge and skills from the **sciences**.

No applicable SLOs.

GLO 8.4: Apply knowledge and skills from **information and communication technology**.

No applicable SLOs.

Goal 9: Demonstrate an understanding of the **structure and scope** of plumbing and the pipe trades.

GLO 9.1: Demonstrate an understanding of the **structure and scope of plumbing and the pipe trades, as well as associated occupations**.

No applicable SLOs.

GLO 9.2: Demonstrate an understanding of **training and employment opportunities** in plumbing and the pipe trades, as well as in associated occupations.

SLO 12C.9.2.1 Demonstrate an understanding of training and its relationship to opportunities in various careers.

Goal 10: Demonstrate an awareness of **sustainability** as it pertains to plumbing and the pipe trades.

GLO 10.1: Describe the impact of **human sustainability** on the health and well-being of plumbers, tradespersons working in the pipe trades, and those who use the systems they construct.

SLO 12C.10.1.1 Demonstrate an understanding of the long-term health concerns related to the different materials used in plumbing and the pipe trades.

SLO 12C.10.1.2 Demonstrate an understanding of the sustainability of plumbers' working conditions, including working hours, travel, and shift work.

GLO 10.2: Describe plumbing and the pipe trades' **sustainability practices** and **impact on the environment**.

SLO 12C.10.2.1 Demonstrate an understanding of sustainability practices and of the environmental impact of water supply systems with regard to their design, fabrication, and use.

SLO 12C.10.2.2 Demonstrate an understanding of the importance of using recycled materials.

GLO 10.3: Describe **sustainable business practices** within plumbing and the pipe trades.

SLO 12C.10.3.1 Demonstrate an awareness of the relationship between positive customer relations and the long-term sustainability of a business.

Goal 11: Demonstrate an awareness of the **ethical and legal standards, including codes**, as they pertain to plumbing and the pipe trades.

GLO 11.1: Demonstrate an understanding of **ethical and legal standards**.

SLO 12C.11.1.1 Demonstrate ethics by practising quality workmanship.

SLO 12C.11.1.2 Demonstrate ethics by creating and maintaining safe working conditions for all concerned.

SLO 12C.11.1.3 Demonstrate an understanding of codes and regulations related to water supply systems.

SLO 12C.11.1.4 Demonstrate an awareness of the legal requirements related to specialized procedures and testing of water supply systems

Goal 12: Demonstrate employability skills.**GLO 12.1: Demonstrate fundamental employability skills.**

- SLO 12C.12.1.1 Demonstrate regular and punctual attendance.
 - SLO 12C.12.1.2 Demonstrate critical-thinking and problem-solving skills.
 - SLO 12C.12.1.3 Demonstrate accountability by taking responsibility for their actions.
 - SLO 12C.12.1.4 Demonstrate adaptability, initiative, and effort.
 - SLO 12C.12.1.5 Demonstrate the ability to accept and follow direction and feedback.
 - SLO 12C.12.1.6 Demonstrate teamwork skills.
 - SLO 12C.12.1.7 Demonstrate the ability to stay on task and use time effectively.
 - SLO 12C.12.1.8 Demonstrate the ability to communicate respectfully and effectively with teachers, supervisors, coworkers, and students.
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GLO 12.2: Demonstrate an understanding of the business operations of a plumbing and pipe trades organization.

- SLO 12C.12.2.1 Read and interpret a material take-off sheet as part of an estimate.
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GLO 12.3: Demonstrate critical thinking skills.

- SLO 12C.12.3.1 Demonstrate problem-solving skills.
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GLO 12.4: Demonstrate an understanding of culture and its influence in the workplace.

- SLO 12C.12.4.1 Demonstrate an awareness of how people's culture affects their values and behaviour.
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Goal 13: Demonstrate an awareness of the history, technological progression, and emerging trends in plumbing and the pipe trades.**GLO 13.1: Demonstrate an awareness of the history, technological progression, and emerging trends in plumbing and the pipe trades.**

- SLO 12C.13.1.1 Demonstrate an awareness of the potential of renewable energy sources, such as solar energy, in plumbing and the pipe trades.
 - SLO 12C.13.1.2 Demonstrate an awareness of the use of GPS in the trades for locating and levelling systems.
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