PLUMBING TECHNOLOGY

DIPLOMA – 36 CREDITS

About this program

The Plumbing Technology program is designed for apprentice plumbers and others entering a plumbing career. It begins with safety, tools and materials used in the industry with a strong emphasis on the Minnesota and North Dakota plumbing codes, covering both residential and commercial installation practices and standards. An introduction to blueprints and isometric drawings will be presented, as well as backflow prevention theory and devices. Graduates will be eligible for applicable hours on their apprenticeship card.

Program outcomes

1. Exhibit proper safety techniques and procedures.
2. Classify the use of common plumbing materials and fixtures.
3. Analyze blueprints and isometric drawings.
4. Demonstrate proper techniques and procedures for installation of plumbing systems.
5. Perform skillfully the installation of plumbing fixtures and faucets.
6. Apply knowledge of plumbing code rules and regulations.

Curriculum overview

Crds	Requirement type
33	Required courses
3	Restricted electives in courses
36	**Total**

Developmental courses note: A student may be required to enroll in developmental courses in reading, writing and math. A student's scores on the Accuplacer assessment will determine enrollment in developmental courses. The purpose of developmental courses is to prepare students for the demands of a college-level curriculum. *Credits may vary.*

Accreditation: Minnesota State Community and Technical College is accredited by the Higher Learning Commission, a regional accreditation agency recognized by the U.S. Department of Education. The Higher Learning Commission 230 South LaSalle Street, Suite 7-500 Chicago, IL 60604-1411 http://www.ncahigherlearningcommission.org Phone: 312.263.0456 / 800.621.7440

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Curriculum requirement details

Required courses

Course	Crds
PLBG1101 - Piping and Job Safety	2
PLBG1103 - Plumbing Trade Tools	2
PLBG1115 - Faucets and Fixtures	2
PLBG1119 - Materials and Fittings	4
PLBG1123 - Plumbing Code I	3
PLBG1125 - Plumbing Lab I	2
PLBG1131 - Grade and Elevation	2
PLBG1133 - Blueprint Reading	2
PLBG1135 - Drainage, Waste and Venting	4
PLBG1137 - Water Distribution	3
PLBG1141 - Plumbing Code II	3
PLBG1145 - Plumbing Lab II	2
PLBG1150 - Plumbing Technology Internship	2

Other requirements or restricted electives

3 credits from one or more of these Courses:

Course title	Credits
COMM1130 - Small Group Communication	3
COMM1140 - Interpersonal Communication	3
ENGL1101 - College Writing	3
MATH1000 - Technical Mathematics	3
PHIL1200 - Applied and Professional Ethics	3
PHIL1201 - Ethics	3
PSYC1101 - Human Interaction	3
PSYC1200 - General Psychology	3

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Course summaries

PLBG1101 - Piping and Job Safety ..... ***(2 credits)***
This course introduces the student to the plumbing profession. Topics include history, safety, basic applied math, fundamentals of rigging and hand signals to equipment operators.

PLBG1103 - Plumbing Trade Tools ..... ***(2 credits)***
This course introduces common hand and power tools and product-specific tools used in the plumbing trade. Emphasis will be on the safe and proper use and maintenance of these tools.

PLBG1115 - Faucets and Fixtures ..... ***(2 credits)***
This course covers various faucets and fixtures used in plumbing, including residential and commercial fixtures, their installation and application.

PLBG1119 - Materials and Fittings ..... ***(4 credits)***
This course introduces the materials and fittings used in the plumbing trade, including copper, plastics, brass, polymers, cast iron, black iron and glass. The application of these material types will be covered, as well as fitting names and their uses.

PLBG1123 - Plumbing Code I ..... ***(3 credits)***
This course introduces and familiarizes students with the Minnesota Plumbing Code and the North Dakota Plumbing Code. Definitions and miscellaneous statutes related to the plumbing codes will be covered.

PLBG1125 - Plumbing Lab I ..... ***(2 credits)***
In this course students will meet with the instructor for the purpose of applying, demonstrating and reinforcing content covered in lecture courses.

Corequisites:

- PLBG1101
- PLBG1103
- PLBG1115
- PLBG1119
- PLBG1123

PLBG1131 - Grade and Elevation ..... ***(2 credits)***
This course covers grade and elevation as it pertains to pipe installation. Emphasis will be on identification and proper use of needed tools and the methods and calculations used in determining grade and elevation.

Prerequisites:

- PLBG1123

PLBG1133 - Blueprint Reading ..... ***(2 credits)***
This course covers different types and sections of blueprints, including the different views and key points a plumber will need to understand. Interpreting isometrics also will be covered. Specification sheets will be introduced and their importance explained.

Prerequisites:

- PLBG1123

PLBG1135 - Drainage, Waste and Venting ..... ***(4 credits)***
This course covers drainage, waste and venting (DWV) as required in the Minnesota Plumbing Code and the North Dakota Plumbing Code. Emphasis is on differences between types of drainage, waste and venting systems and applying the code regulations in sizing the systems. Drawing isometrics for a DWV system will be covered.

Prerequisites:

- PLBG1123

PLBG1137 - Water Distribution ..... ***(3 credits)***
This course will familiarize the learner with water supply and distribution and the rules for sizing a water supply system as applicable to the Minnesota Plumbing Code and the North Dakota Plumbing Code. Drawing isometrics will be introduced.

Prerequisites:

- PLBG1123

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PLBG1141 - Plumbing Code II ..... ***(3 credits)***
This course covers application of the plumbing code regulations of Minnesota and North Dakota for the installation of residential and commercial fixtures, material and fittings.

Prerequisites:

- PLBG1123

PLBG1145 - Plumbing Lab II ..... ***(2 credits)***
In this course students will meet with the instructor for the purpose of applying, demonstrating and reinforcing content in the concurrent courses being taken online.

Prerequisites:

- PLBG1125

PLBG1150 - Plumbing Technology Internship ..... ***(2 credits)***
This course will provide plumbing students with the opportunity to apply their knowledge, practice their skills, integrate behaviors and explore areas of employment within the plumbing industry. Students will perform activities consistent with program outcomes in an industry setting under the supervision of the site employer.

Prerequisites:

- PLBG1125

COMM1130 - Small Group Communication ..... ***(3 credits)***
Meets MnTC Goal Areas 1 and 2. This course focuses on communication issues in small groups and the importance of small group work in business today. An emphasis will be placed on improving communication skills for successful teamwork, group cohesiveness and the responsibility to group goals and tasks. Students will be provided with opportunities to build their group communication skills through practice.

COMM1140 - Interpersonal Communication ..... ***(3 credits)***
Meets MnTC Goal Area 1. This course will focus on improving students' abilities to communicate effectively in one-to-one dyadic encounters by providing experience-based instruction. Extensive in-class and out-of-class analyses allow the student to examine his/her own and others' informal social interactions. The long-term goal is for the student to apply interpersonal communication theories to daily interactions and draw his/her own conclusions about the effectiveness of interpersonal communication.

ENGL1101 - College Writing ..... ***(3 credits)***
Meets MnTC Goal Area 1. This is an introductory course designed to prepare students for later college and career writing through a process approach with particular emphasis on revision. Students consider purpose and audience as they read, discuss and refine their work to develop confidence in their writing and communication skills.

MATH1000 - Technical Mathematics ..... ***(3 credits)***
This course presents basic mathematical topics as they are applied in a technical program. The course includes a review of basic mathematical operations and continues with the development of algebraic and trigonometric skills in a technical setting. Most concepts will be applied through course-specific problems. This course is not an MnTC Goal Area 4 mathematics course, nor does it prepare students for taking an MnTC Goal Area 4 mathematics course.

PHIL1200 - Applied and Professional Ethics ..... ***(3 credits)***
Meets MnTC Goal Areas 2 and 9. In this course students will explore ethical issues that arise in professional settings including business, medical and technical settings. The course will also look at the philosophical underpinnings of current professional policies and how philosophy can offer insights that can enhance and deepen such policies.

PHIL1201 - Ethics ..... ***(3 credits)***
Meets MnTC Goal Areas 2, 6 and 9. This course is an introduction to the topic of ethics. In this course, the following questions are examined: What is ethics? How do we make ethical decisions? Are things that are legally right necessarily right? Should we consider our own interests when making ethical decisions? Are things ethically right simply because God says they are right? If our culture says something is ethically right, does that mean it is ethically right? The course also examines numerous topical ethical issues such as racism, terrorism and censorship.

PSYC1101 - Human Interaction ..... ***(3 credits)***
Meets MnTC Goal Areas 2 and 5. This is an introductory course emphasizing practical applications of psycho-social concepts, with specific emphasis on personality development, human relations and motivation. This course is applicable for students in occupational and health-related fields or general education.

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PSYC1200 - General Psychology ..... ***(3 credits)***
Meets MnTC Goal Areas 5 and 9. This is a comprehensive introductory overview of psychology that studies human behavior and mental processes. Topics include (but are not limited to) research methods, the history of psychology, neuroscience and behavior, developmental psychology, sensation and perception, motivation and emotion, health psychology, learning and memory, personality, social psychology, psychopathology and treatments, and states of consciousness such as sleep and dreams.

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Program Plan — "Fall Start"

Locations: Moorhead

1st Fall Term (18 credits)

Courses

Course	Crds
PLBG1101 - Piping and Job Safety	2
PLBG1103 - Plumbing Trade Tools	2
PLBG1115 - Faucets and Fixtures	2
PLBG1119 - Materials and Fittings	4
PLBG1123 - Plumbing Code I	3
PLBG1125 - Plumbing Lab I	2

3 credits in one or more of the following:

COMM1130 - Small Group Communication 3
COMM1140 - Interpersonal Communication 3
ENGL1101 - College Writing 3
MATH1000 - Technical Mathematics 3
PHIL1200 - Applied and Professional Ethics 3
PHIL1201 - Ethics 3
PSYC1101 - Human Interaction 3
PSYC1200 - General Psychology 3

1st Spring Term (18 credits)

Courses

Course	Crds
PLBG1131 - Grade and Elevation	2
PLBG1133 - Blueprint Reading	2
PLBG1135 - Drainage, Waste and Venting	4
PLBG1137 - Water Distribution	3
PLBG1141 - Plumbing Code II	3
PLBG1145 - Plumbing Lab II	2
PLBG1150 - Plumbing Technology Internship	2

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