

Plumbing (PLUM)

PLUM 100. Intro to the Plumbing Trades. 4 Credits.

This course covers tools in the plumbing trade and how to use them: tools powered by electricity, batteries, and pressurized air, such as drills, saws, grinders, sanders, slings, hardware, hoists, rigging operations, critical safety issues, and accepted rigging techniques and practices.

PLUM 110. Intro to Plumbing and Drawing. 1 Credit.

This course introduces the history of plumbing from ancient times to current plumbing training programs, and also covers professional practices, career opportunities, and some basic safety. This course reviews the blueprints that are included in a building's plans and then moves on to specific plumbing drawings, such as isometric and oblique pictorial drawings, orthographic drawings, and schematic drawings. It also covers drawings of fixtures, assembly drawings, and cutaway drawings. This course includes an application of plumbing math.

PLUM 120. Intro to Piping Systems. 3 Credits.

This course describes the various types of plastic piping and fittings, what each is used for, and the measuring, cutting, and joining techniques for each type; hangers and supports used with plastic pipe, various types of copper tubing and fittings, measuring, cutting, and joining techniques, two types of cast-iron pipe (hub and no-hub). This course also describes carbon steel pipe; an overview of the drain, waste, and vent (DWV) systems; basics of traps, drains, vents, DWV fittings, and clean outs and an overview of the water distribution system.

PLUM 125. Intro to Plumbing Fixtures. 2 Credits.

This course covers the various types of fixtures that plumbers install, including sinks and lavatories, bathtubs and showers, water closets and urinals, garbage disposals and dishwashers, and laundry trays and mop basins.

PLUM 170. Plumbing Codes. 2 Credits.

This course is a study of the State of Montana plumbing code as it regulates environmental sanitation for the protection of public health. It also includes a study of the materials and installation methods that require a minimum of service and maintenance.

PLUM 191. Special Topics. 3 Credits.

Courses not required in any curriculum for which there is a particular one-time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.

PLUM 192. Independent Study. 3 Credits.

Provides an opportunity for students to engage in directed research and study on an individual basis rather than in a formal class environment.

PLUM 200. Pipe Fitting Tools & Motor Eq. 3 Credits.

This course covers general hand tool safety and procedures for identifying, selecting, inspecting, using, and caring for pipe vises and stands, pipe wrenches, levels, pipe fabrication tools, and pipe bending and flaring tools.

PLUM 206. Applied Water Hydraulics. 3 Credits.

Applied hydraulics including study of water and wastewater collection and distribution, maintenance, and safety. Includes lecture and laboratory hours, but the hours are not the kind of experience that satisfies the laboratory science requirement. This course does not meet the laboratory science requirement.

PLUM 210. Advanced Blueprint Reading. 2 Credits.

This course introduces plot plans, structural drawings, elevation drawings, as-built drawings, equipment arrangement drawings, isometric drawings, spool sheets, and detail sheets in the plumbing industry.

PLUM 230. Hngrs, Supports, & Fld Testing. 2 Credits.

This course describes pipe hangers and supports found on the job site and the selection and performance of field tests of plumbing installation.

PLUM 240. Distribution Systems. 3 Credits.

Introduction to the topics included on the Montana State Examination. Laboratory experience in basic mechanical and plumbing skills, identification, selection, operation, maintenance and repair of hardware and piping systems, and safety procedures commonly used by water or wastewater treatment plants. The laboratory procedures are not the kinds of experiences that satisfy the laboratory science requirement. This course does not meet the laboratory science requirement.

PLUM 250. Special Piping. 3 Credits.

This course explains how to assemble flared and compression joints using copper tubing and the installation of hydronic piping.

PLUM 260. Intro to Cntrl Circuit Trblsht. 2 Credits.

This course covers the operation, testing, and adjustment of conventional and electronic thermostats as well as the operation of common electrical and electronic circuits used to control HVAC systems.

PLUM 270. Hydronic Heating & Cooling Sys. 2 Credits.

This course covers operating principles, piping systems, and preventive maintenance pertaining to the servicing of boilers, chillers, chilled water systems, absorption systems, steam systems, and system traps.

PLUM 280. Energy Management. 1 Credit.

This course explains how computer and microprocessor controls are used to manage zoned HVAC systems in residential and commercial buildings.

PLUM 285. System Startup & Shutdown. 1 Credit.

This course covers procedures for the start-up of hot water and steam heating systems and chilled water systems. Emphasis is on start-up after initial equipment installation or after an extended period of shutdown.

PLUM 292. Independent Study. 3 Credits.

Provides an opportunity for students to engage in directed research and study on an individual basis rather than in a formal class environment.

PLUM 298. Cooperative Education. 1-12 Credits.

A planned and supervised work-learning experience in industry, business, government, or community service agencies related to the University program of study. Prerequisites: two semesters of attendance at Montana State University-Northern, approval of advisor, Dean of the College of Technical Sciences, and cooperative education coordinator. Pass/Fail Only.