UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Plumbing Apprenticeship
FY2027 / 24 Credits (720 Clock-Hours)

Foundational Courses

TEPL 1110 Plumbing 1A — 3 Credits / 90 Clock-Hours

The Plumbing 1A course explores the secure and highly demanded profession of plumbing. The primary emphases include: the understanding and interpretation of the International Plumbing Code (IPC), blueprint reading, materials and requirements, practical mathematics required in plumbing, and other subject areas that are essential to the trade which are more conducive to the classroom setting than a work environment.

Objectives:
• Practice construction jobsite safety and emergency first aid strategies.
• Practice safety and the proper use of tools and leveling instruments.
• Define hydraulics and pneumatics.
• Interpret building and plumbing codes.
• Apply basic mathematics toward measurements, angles, slopes, and other plumbing related problems.
• Fabricate plumbing projects in a lab setting.

TEPL 1120 Plumbing 1B — 3 Credits / 90 Clock-Hours

The Plumbing 1B course introduces the fundamentals of plumbing theory for the apprentice plumbers and will cover the International Plumbing Code, related math, and craft skills.

Objectives:
• Identify fixtures, faucets and fixture fittings, water heaters, traps, interceptors and separators.
• Develop basic skills needed to read drawings and produce piping sketches.
• Apply mathematics related to plumbing and angles.
• Implement the process of making watertight joints using heat and various filler metals.
• Define machine and hand excavating with emphasis on safety.
• Explain various types of pipe and fittings used in residential and light commercial plumbing systems.
• Fabricate several piping projects in a lab situation.

TEPL 1210 Plumbing 2A — 3 Credits / 90 Clock-Hours

The Plumbing 2A course introduces the fundamentals of plumbing theory for the apprentice plumbers and covers the International Plumbing Code (IPC), related math, and craft skills.

Objectives:
• Describe water supply and distribution, sanitary drainage, indirect/special waste, vents, traps, interceptors and separators, along with other basic fundamental plumbing components.
• Identify the many different fixtures designed for residential and small commercial buildings.
• Apply correct principles for designing Drainage, Waste, and Vent (DWV) and water supply systems that will provide long and satisfactory service.
• Describe how to determine the size of water supply piping.
• Define how to support and test both DWV and water supply systems.
• Explain R317-4 onsite wastewater systems.
• Fabricate several piping projects in a lab situation.

TEPL 1220 Plumbing 2B **3 Credits / 90 Clock-Hours**

The Plumbing 2B course continues to explore the fundamentals of plumbing theory for the apprentice plumbers and covers the International Plumbing Code (IPC), related math, and craft skills.

Objectives:
• Explain storm drainage and special piping and storage systems.
• Calculate grade, percent grade, drop and run, and offsets.
• Cite proper construction and operation of private waste-disposal systems.
• Identify the basic components, design considerations, and installation techniques of swimming pools, hot tubs, and spas.
• Describe the components and materials used in lawn and garden irrigation systems.
• Troubleshoot, recognize, and repair problems associated with plumbing systems.
• Fabricate several piping projects in a lab situation.

TEPL 1310 Plumbing 3A **3 Credits / 90 Clock-Hours**

The Plumbing 3A course continues to explore the fundamentals of plumbing theory for the apprentice plumbers and covers the International Plumbing Code (IPC), International Fuel Gas Code (IFGC) and International Mechanical Code (IMC), along with related math and craft skills.

Objectives:
• Identify materials detrimental to sewer systems.
• Determine protection of pipes and plumbing system components.
• Explain washroom and toilet room requirements.
• Describe specialty plumbing fixtures.
• Determine proper water heater, vents, and combustion air installation requirements as per the International Mechanical Code (IMC) and the International Fuel Gas Code (IFGC).
• Calculate combustion air, chimneys, and vent sizes.
• Determine volume of Rectangular Solids, Cylinders.
• Identify NPFA 13D residential fire sprinklers.
• Fabricate several piping projects in a lab situation.

TEPL 1320 Plumbing 3B **3 Credits / 90 Clock-Hours**

The Plumbing 3B course introduces the fundamental Plumbing theory for the Apprentice Plumbers and covers the International Plumbing Code (IPC), International Fuel Gas Code (IFGC) and International Mechanical Code (IMC), along with related math and craft skills.

Objectives:
• Calculate size of fuel piping and fuel-gas piping.
• Describe vents and commercial/industrial application.
• Describe indirect/special waste and commercial/industrial application.
• Calculate size of water supply and distribution review and commercial/industrial applications.
• Identify special piping and storage systems.
• Explain Utah Amendments and R317-4.
• Demonstrate understanding of plan reading and building plan technologies
• Fabricate several piping projects in a lab situation.
• Calculate sizing of various water and drain piping systems.

TEPL 1410 Plumbing 4A **3 Credits / 90 Clock-Hours**

The Plumbing 4A course reviews the International Plumbing Code (IPC), International Fuel Gas Code and International Mechanical Code, math, and other laws in preparation for taking the journeyman state test.

Objectives:
• Define all chapters of the International Plumbing Code.
• Apply mathematics related to plumbing, angles, rolling offsets and pipe lengths.
• Explain storm drainage and commercial/industrial application for sizing roof drains.
• Explain International Mechanical Code for general, combustion air, boilers, and hydronics.
• Discuss Utah Amendments to the Code.
• Identify National Fire Protection Association (NFPA) 13D residential fire sprinklers.
• Explain R317-4 onsite wastewater.
• Demonstrate understanding of plan reading and building plan technologies .
• Fabricate several piping projects in a lab situation.

TEPL 1420 Plumbing 4B **3 Credits / 90 Clock-Hours**

The Plumbing 4B course assists the apprentices in passing the state test and provides a foundation for success as a journeyman plumber. A variety of modules are available for the student to work from, with a focus on what each individual student needs in order to prepare for the test.

Objectives:
• Review International Plumbing Code (IPC) chapters.
• Apply mathematics for plumbers and pipefitters.
• Use International Fuel Gas Code for gas pipe installation and sizing.
• Define traps and commercial applications.
• Explain storm drainage and commercial/industrial applications.
• Identify boilers, water heaters, and pressure vessels.
• Perform applied trade formulas using different equations.
• Calculate heat loss vs. radiator size.
• Determine radiation sizing for total heat loss of a room.
• Use Journeyman skills such as takeoff lists, leadership skills, communication, and basic business skills.
• Fabricate several piping projects in a lab situation.