Utah System of Higher Education

Plumbing Residential

FY2023 / 18 Credits (540 Clock-Hours)

Plumbing Residential			
Institutions: Dixie			
Certificate of Program Completion (Catalog Year: 2023, 18 Credits/540 Clock-Hours Required, CIP:46.0503)			
Core (18 Credits/540 Clock-Hours)		**Credits**	**Clock-Hours**
TEPL 1110	Plumbing IA	3	90
TEPL 1120	Plumbing IB	3	90
TEPL 1210	Plumbing IIA	3	90
TEPL 1220	Plumbing IIB	3	90
TEPL 1310	Plumbing IIIA	3	90
TEPL 1320	Plumbing IIIB	3	90

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PROGRAM DESCRIPTION

The Plumbing Residential program satisfies the educational requirements to take the State Journeyman Residential Plumber Exam. A basic assessment is required prior to enrolling. This program provides a solid understanding of the International Plumbing Code (IPC), its layout, and the requirements for different plumbing systems and parts of those systems. This program discusses the processes, parts, and risks involved with the various plumbing systems as well as the safety equipment and measures that are in place to protect plumbers and the public alike.

Objectives:

- Determine the application of the International Plumbing Code (IPC)
- Demonstrate how to navigate the International Plumbing Code (IPC)
- Calculate sizing of various piping, including natural gas, supply, and waste lines
- Demonstrate the application of the International Fuel Gas Code
- Demonstrate the application of the International Mechanical Code
- Demonstrate practical application of plumbing mathematics
- Apply critical and practical thinking skills necessary to pass the State Residential Journeyman's Test

COURSE DESCRIPTIONS

Plumbing IA — 3 Credits / 90 Clock-Hours

The Plumbing IA 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:

- Certify in First Aid Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED)
- 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

Plumbing IB — 3 Credits / 90 Clock-Hours

The Plumbing IB 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

Plumbing IIA **3 Credits / 90 Clock-Hours**

The Plumbing IIA 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

Plumbing IIB **3 Credits / 90 Clock-Hours**

The Plumbing IIB 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

Plumbing IIIA **3 Credits / 90 Clock-Hours**

The Plumbing IIIA 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

Plumbing IIIB **3 Credits / 90 Clock-Hours**

The Plumbing IIIB course introduces the fundamental Plumbing theory for the Apprentice Plumbers and covers the International Plumbing Code (IPC), International Fuel Gas Code and International Mechanical Code, 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 R617-4
- Fabricate several piping projects in a lab situation
- Calculate sizing of various water and drain piping systems

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