

APPT 121: INTRODUCTION TO RESIDENTIAL PLUMBING, SAFETY & TOOLS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2024
Units:	2.5
Hours:	18 lecture, 36 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Residential Plumbing Apprenticeship Program.
Advisory:	Current employment in the pipe trades industry.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- A student will be able to define common terms used in plumbing.
- A student will be able to demonstrate the proper use of pipe cutting and threading tools.
- A student will be able to identify partners in an apprenticeship.

Description

An introduction to basic residential plumbing standards, employment information and procedures, history and heritage of plumbing, organization, and construction safety. Necessary trade skills, including cutting and threading, use and care of tools, and soldering and brazing are taught along with construction terminology and plumbing definitions.

Course Objectives

The student will be able to:

1. Describe the apprenticeship process
2. Describe Union Heritage
3. Demonstrate safe work practices
4. Demonstrate proficiency in the use of common tools
5. Demonstrate proficiency in pipe joining and installation skills
6. Perform soldering and brazing

Course Content

1. Describe the apprenticeship process
 - a. Training Center facility and staff
 - b. JATC policies and procedures
2. Describe Union Heritage

- a. History of the UA
 - b. Identify partners in an apprenticeship
 - c. The collective voice
 - d. Role and responsibilities of contractors
 - e. Characteristics and goals of outstanding journeymen
3. Work safely on the job
 - a. Purpose and responsibilities of OSHA
 - b. Workplace hazards
 - c. Fall protection
 - d. Personal Protective Equipment (PPE)
 - e. Electrical safety, tool safety, stairway and ladder safety
 - f. Proper methods for lifting and carrying objects
 - g. Safety issues related to excavation
 - h. Confined spaces
 - i. Fire safety
 4. Demonstrate proficiency in the use of common tools
 - a. Identify types of and use of various tools
 - b. Measuring tools
 - c. Properly use pipe cutting tools
 - d. Properly use pipe reaming tools
 - e. Properly use drilling tools
 - f. Properly use pipe boring tools
 - g. Recognize and use digging and lifting tools
 5. Demonstrate proficiency in pipe joining and installation skills
 - a. Describe common terms associated with steel pipe
 - b. Identify the various types of steel pipe and fittings
 - c. Steel pipe threading and joining
 - d. Flanged method of joining steel pipe
 - e. Use the grooved coupling method of joining steel pipe
 - f. Identify and properly use plastic pipe fittings
 - g. Identify cast iron pipe and nomenclature
 - h. Cut and join cast iron pipe
 - i. Identify the types and uses of fittings
 - j. Components and functions of hangers
 - k. Pressure testing
 6. Perform soldering and brazing
 - a. Identify the common types of fittings used with copper tubing
 - b. Describe the manufacture and materials of copper pipe
 - c. Types of solder used for joining copper tube
 - d. Types of brazing filler metal used for joining copper tube
 - e. Types of flux used for soldering and brazing copper tube
 - f. Prepare and assemble copper joints
 - g. Perform soldering process
 - h. Make a brazed joint

Lab Content

1. Use personal protective equipment
2. Threading steel pipe
3. Soldering and brazing

Special Facilities and/or Equipment

1. Personal protective equipment

2. Laboratory with plumbing tools

Discipline(s)

Plumbing

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Results of written quizzes and final examination
Satisfactory completion of hands-on projects
Maintenance of a student's workbook with questions drawn from text

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture
Lab assignment
Group discussion
Demonstration

Representative Text(s) and Other Materials

International Pipe Trades Joint Training Committee. Standard for Excellence. 2015.

. A Construction Industry Partnership Standardized Training, Modules 1-19. 2012.

United Association of Journeymen and Apprentices. Use and Care of Tools for United Association Journeymen and Apprentices. 2006.

Ripka, L.V.. Plumbing Design and Installation, 4th ed. with workbook. 2012.

International Association of Plumbing and Mechanical Officials. 2016 California Plumbing Code California Code of Regulations Title 24, Part 5. 2016.

International Pipe Trades Joint Training Committee. UA Pipe Fittings, Valves, Supports and Fasteners. 2015.

International Pipe Trades Joint Training Committee, Inc.. Soldering and Brazing. 2015.

These are the standard textbooks/workbooks used for this course. Although they are older than 5 years, they are the most current books used when teaching this course.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Readings from assigned textbook
 - a. Articles and lessons in Standard for Excellence, chapters 1-3
 - b. Laws and manuals containing safety rules and regulations for various pertinent agencies, chapters 4-6
2. Writing assignments given in the laboratory
 - a. Essays on the development, impact, and importance of unions in the United States
 - b. Essay and exams on the importance of safety rules and regulations governing construction