

# APPT 131: P-101 BASIC PLUMBING SKILLS

## Foothill College Course Outline of Record

Heading	Value
<b>Effective Term:</b>	Summer 2024
<b>Units:</b>	7.5
<b>Hours:</b>	82 lecture, 36 laboratory per quarter (118 total per quarter)
<b>Prerequisite:</b>	Per California Code of Regulations, this course is limited to students admitted to the Plumbing Technology Apprenticeship Program.
<b>Advisory:</b>	Not open to students with credit in APPR 110.
<b>Degree &amp; Credit Status:</b>	Degree-Applicable Credit Course
<b>Foothill GE:</b>	Non-GE
<b>Transferable:</b>	None
<b>Grade Type:</b>	Letter Grade (Request for Pass/No Pass)
<b>Repeatability:</b>	Not Repeatable

## Student Learning Outcomes

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

## Description

Orientation to the apprenticeship program, JATC policies and procedures. UA history and heritage will also be covered. Safety training is introduced, with instruction in general construction safety. This is followed up with necessary trade skills, including use and care of tools, pipe and tube installations, soldering, brazing, and other plumbing skills.

## Course Objectives

The student will be able to:

1. Describe the apprenticeship process
2. Describe Union Heritage
3. Work safely on the job
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. Tube bending procedures
      - i. 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

Students will work individually and in teams on safe practices of joining and installing waste and water piping system components.

## Special Facilities and/or Equipment

1. Laboratory with plumbing tools.
2. Personal protective equipment.

3. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address.

## Method(s) of Evaluation

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

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

## 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.

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

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

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

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

Although these texts are older than the recommended 5 years they conform to national training standards and are considered seminal works in the discipline. We will adopt the next edition of each text, as it is published.

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

1. Readings from assigned textbooks:
  - a. Articles and lessons on Union Heritage, chapters 1-3
  - b. Laws and manuals containing safety rules and regulations for various pertinent agencies
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

## Discipline(s)

Plumbing