APPT 141: SF 101 BASIC STEAMFITTING SKILLS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
Units:	7
Hours:	72 lecture, 36 laboratory per quarter (108 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Steamfitting & Pipefitting Technology Apprenticeship Program.
Advisory:	Not open to students with credit in APPR 123.
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 identify partners in an apprenticeship.
- A student will be able to define common terms used in steamfitting.
- A student will be able to demonstrate the proper use of pipe cutting and threading tools.

Description

Orientation to the apprenticeship program, JATC policies and procedures. UA history and heritage also 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, and soldering and brazing.

Course Objectives

The student will be able to:

a. Describe the apprenticeship process
b. Describe Union Heritage
c. Work safely on the job
d. Demonstrate proficiency in the use of common tools
e. Demonstrate proficiency in pipe joining and installation skills
f. Perform soldering and brazing

Course Content

a. Apprenticeship process
    i. Training Center facility and staff
    ii. JATC policies and procedures
b. Union Heritage
    i. History of the UA
    ii. Identify partners in an apprenticeship
    iii. The collective voice
    iv. Role and responsibilities of contractors
    v. Characteristics and goals of outstanding journeymen
c. Work safety
    i. Purpose and responsibilities of OSHA
    ii. Workplace hazards
    iii. Fall protection
    iv. Personal protective equipment (PPE)
    v. Electrical safety, tool safety, stairway and ladder safety
    vi. Proper methods for lifting and carrying objects
    vii. Safety issues related to excavation
    viii. Confined spaces
    ix. Fire safety
d. Common tools
    i. Identify types of and use of various tools
    ii. Measuring tools
    iii. Properly use pipe cutting tools
    iv. Properly use pipe reaming tools
    v. Properly use drilling tools
    vi. Properly use pipe boring tools
    vii. Recognize and use digging and lifting tools
e. Pipe joining and installation
    i. Describe common terms associated with steel pipe
    ii. Identify the various types of steel pipe and fittings
    iii. Steel pipe threading and joining
    iv. Flanged method of joining steel pipe
    v. Use the grooved coupling method of joining steel pipe
    vi. Identify and properly use plastic pipe fittings
    vii. Identify the types and uses of fittings
    viii. Components and functions of hangers
    ix. Tube bending procedures
    x. Pressure testing
f. Soldering and brazing
    i. Identify the common types of fittings used with copper tubing
    ii. Describe the manufacture and materials of copper pipe
    iii. Types of solder used for joining copper tube
    iv. Types of brazing filler metal used for joining copper tube
    v. Types of flux used for soldering and brazing copper tube
    vi. Prepare and assemble copper joints
    vii. Perform soldering process
    viii. Make a brazed joint

Lab Content

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

Special Facilities and/or Equipment

1. Laboratory with plumbing/steamfitting tools
2. Personal protective equipment
3. When taught via Foothill Global Access, on-going access to computer with software and hardware capable of accessing email, learning management system, and video conferencing; 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, Inc.. Standard for Excellence. 2015.

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

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

Although these textbooks are older than 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

a. Readings from assigned textbooks:
    i. Articles and lessons on Union Heritage, chapters 1-3
    ii. Laws and manuals containing safety rules and regulations for various pertinent agencies
    iii. Tool maintenance manuals
b. Writing assignments given in the laboratory:
    i. Essays on the development, impact, and importance of unions in the United States
    ii. Essay and exams on the importance of safety rules and regulations governing construction

Discipline(s)

Plumbing