

Course Code: PFT 111

Course Title: Orientation to Plumbing and Pipefitting

Department: Applied Sciences and Technologies

Effective Date: Summer 2026

PCS Code: 1.2 - Occupational/Technical Instruction

CIP Code: 46.0503

Repeatability: 0

Credit Hours

Catalog Notation: 3-0-3

Credit Hour Distribution:

Lecture: 3

Lab: 0

Clinical: 0

Total: 3

General Course Information

Catalog Description

Orientation to the pipe trades. Materials and connections, care and use of tools. Mathematical problem solving and trade mathematics.

General Course Objectives

The apprentice will understand the pipe trades functions, be able to identify and use the tools of the trade, and be able to do mathematical calculations used on the job.

Minimum Placement Levels

English

None

Reading

None

Math

None

Prerequisites

Admission into the Plumbers and Pipefitters Apprenticeship program

Approval of department chair

Methods of Evaluation

The minimum evaluation methods include 4 written exams.

Instructional Materials and Additional Supplies

Your Heritage in the Pipe Trades, International Pipe Trades Joint Training Committee, Inc. 2008.

Use and Care of Tools, IPTJTC, 2006.

Related Mathematics, IPTJTC, 2002.

Course Content

General Learning Outcomes (GLOs)

- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Identification of Pipefittings, Valves, and Hangers: a) Welded; b) Flanged; c) Threaded; d) Soldered; e) Bonnets and Valve Stems; f) Hangers, Supports, Inserts, and Anchors; g) Inside Diameter and Outside Diameter on All Types of Pipe; h) Basic Non-metallic Piping Systems; and i) Basic Metallic Piping Systems	1. Identify and describe basic fittings, valves, pipes, and hangers.	6	0	0
Pipe Connections: a) Threaded, b) Flanged, c) Welded, d) Soft Solder, and e) Brazing	1. Recognize types of pipe connections.	4	0	0
Basic Hand and Power Tools: a) Identification of Tools; b) Use and Care of Tools; c) Rules and Tape Measures; d) Wrenches, Pliers, and Striking Tools; e) Struck or Hammered Tools; f) Screwdrivers and Snips; g) Vises and Clamps; and h) Ladders, Scaffolds, and Hoists	1. Demonstrate use and care of tools.	10	0	0
Pipe Machines: a) Power Heads and Portable Power Drives, b) Automatic Threading Machines, c) Portable Threading Machines, d) Cutting and Threading, e) Reaming, and f) Nipple Chuck	1. Operate a pipe threading machine.	3	0	0
Abrasive Saw: a) Operation and b) Safety	1. Operate an abrasive saw.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Basic Mathematics: a) Addition and Subtraction, b) Multiplication and Division, c) Decimals and Fractions, and d) Percentages and Square Roots	1. Solve mathematical problems involving addition and subtraction. 2. Solve mathematical problems involving multiplication and division. 3. Solve mathematical problems involving decimals and fractions. 4. Solve mathematical problems involving percentages and square roots.	9	0	0
Trade Mathematics: a) Mathematics as Related to Industry and b) Use of Fractions	1. Explain the importance of mathematics in the plumbing trades.	1	0	0
Mathematical Computations: a) Fractions, b) Percentages and Discounts, c) Ratio, d) Conversion of Dimensions from Engineering to Architectural and Reverse, e) Slope and Grade, f) Power and Roots, and g) Areas	1. Solve mathematical problems involving ratios and proportions. 2. Convert blueprint dimensions from engineering to architectural and the reverse using longhand methods and formula methods. 3. Compute percentage of slope in given pipe. 4. Compute the area, given a rectangle or cylinder. 5. Complete a given project using mathematical computation for finding area and slope.	10	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	0	0