

# PIPEFITTING/PLUMBING

## PIPEFITTING/PLUMBING (PLMB)

DIVISION: Career Technical Education

### PLMB 100 CAL/OSHA STANDARD FOR EXCELLENCE

2 unit

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

This course covers Cal/OSHA standards and safe work practices in the plumbing industry, including hazard recognition and appropriate response to unsafe conditions. Emphasizes the responsibilities of union membership, including solidarity, ethical decision-making, and adherence to safety protocols. Includes the history, structure, and mission of the United Association (UA), with focus on the rights of members, the rights of employers, and the mutual respect and commitment required between labor and management. Designed for indentured apprentices registered with the State of California who are preparing for careers in the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade

### PLMB 101 TRADE-RELATED MATH

2 unit

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

This course emphasizes trade-related mathematics, including the use of fractions, decimals, percentages, and measurement conversions. Students develop applied skills in geometry and trigonometry, with a focus on the fundamentals of 3-4-5 triangles and the Pythagorean theorem as applied to pipe layout and offsets. By the end of the course, apprentices will be able to calculate pipe fitting allowances, apply grade and slope measurements to piping problems, and accurately interpret trade reference materials and dimensional standards required for fieldwork. Designed for indentured apprentices registered with the State of California who are preparing for careers in the plumbing industry. Designed for indentured apprentices registered with the State of California who are preparing for careers in the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade

### PLMB 102 ADVANCED TRADE-RELATED MATH AND SCIENCE

2 unit

**Prerequisite(s):** PLMB 101

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

The course integrates applied mathematics and related scientific principles essential to the pipe trades. In the first segment, students develop proficiency in trigonometry, equal spread offsets, and rolling offsets, and apply these concepts using the Pipe Trades Pro Calculator. The second segment introduces fundamental scientific concepts relevant to the piping industry, including thermodynamics, pressure, weight, temperature relationships, and the calculation of British Thermal Units (BTUs). Designed for indentured apprentices registered with the State of California who are pursuing advanced training in the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade

### PLMB 103 COPPER JOINING METHODS

1 unit

**Prerequisite(s):** PLMB 100 and PLMB 101

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

Instruction emphasizes fundamental copper-joining methods, including soldering, brazing, and the safe use of oxy-acetylene equipment for flame cutting and welding. Course content includes safety and safe work practices; soldering and brazing theory; identification, selection, and application of copper tubing; solders, fluxes, and brazing alloys; joint preparation and assembly; and the use of heating equipment and hand tools. This course is designed to meet the training needs of indentured apprentices registered with the State of California who are pursuing careers in the plumbing and pipefitting trades. Total of 20 hours lecture and 20 hours laboratory.

**Grade Mode:** Letter Grade

**PLMB 104 PLAN READING AND ISOMETRIC DRAWING  
FUNDAMENTALS****1 unit****Prerequisite(s):** PLMB 102

**Enrollment Limitation:** Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16

The course introduces reading and interpreting building plans used in plumbing installations, with emphasis on understanding construction drawings and translating them into accurate piping layouts. Content includes identification and interpretation of symbols and line types, locating specific details and equipment within construction documents, and producing drawings to scale. This course is designed to meet the training needs of indentured apprentices registered with the State of California who are pursuing careers in the plumbing industry. Total of 18 hours lecture and 22 hours laboratory.

**Grade Mode:** Letter Grade**PLMB 105 PIPE FABRICATION AND INSTALLATION FUNDAMENTALS**  
**1 unit****Prerequisite(s):** PLMB 100 and PLMB 102

**Enrollment Limitation:** Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16

This course is designed to meet the training needs of indentured apprentices registered with the State of California who are pursuing careers in the plumbing industry. Course content will focus on the fabrication, assembly, installation, and testing of piping systems serving air, gas, steam, water, and refrigeration applications. This includes identification and selection of piping materials and components; proper layout and fabrication techniques; joining methods; and industry-standard procedures for installation and testing. Emphasis is placed on applying industry specifications, codes, and best practices to ensure safe, accurate, and reliable piping system installations. Total of 18 hours lecture and 22 hours laboratory.

**Grade Mode:** Letter Grade**PLMB 106 SAFE RIGGING PRACTICE****2 unit****Prerequisite(s):** PLMB 100 and PLMB 102

**Enrollment Limitation:** Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16

This course provides training for State of California indentured plumbing apprentices in rigging and material handling operations. Instruction emphasizes safety principles, equipment inspection, identification tag interpretation, and proper setup procedures. Content includes calculating center of gravity, assessing sling stress, and planning crane and rigging configurations. Apprentices apply industry standards to safely move and position materials using cranes and related equipment. Designed for indentured apprentices registered with the State of California who are preparing for careers in the plumbing industry. Total of 36 hours lecture and 4 hours laboratory.

**Grade Mode:** Letter Grade**PLMB 107 COMPUTER SKILLS FOR THE PLUMBING/PIPEFITTING  
TRADES****2 unit**

**Enrollment Limitation:** Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16

This course is designed for indentured apprentices registered with the State of California who are preparing for careers in the plumbing industry. It provides foundational computer skills. Instruction includes basic computer terminology, system navigation, professional email communication, word processing, spreadsheets, and presentation development. Emphasis is placed on practical workplace applications to support communication, documentation, and job-related organization within the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade**PLMB 108 INTRODUCTION TO PLUMBING CODE****2 unit****Prerequisite(s):** PLMB 100 and PLMB 102

**Enrollment Limitation:** Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16

The course provides foundational instruction in navigating and applying the plumbing codebook to real-world installation scenarios. Instruction includes interpretation of code organization, key terminology and definitions, fundamental plumbing system concepts, and commonly used fittings and materials. Apprentices develop the ability to research and apply general code requirements, including installation standards and sizing provisions, to ensure compliance with industry regulations and accepted practices. Designed for indentured apprentices registered with the State of California who are pursuing careers in the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade

**PLMB 109 UNDERGROUND INSTALLATIONS****1.5 unit****Prerequisite(s):** PLMB 100 and PLMB 102

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

The course provides instruction in approved materials for underground plumbing installations and the procedures for excavating, installing, and inspecting underground utilities. Emphasis is placed on trench safety, soil classification, regulatory requirements, and safe work practices, including the use of 811 ("Call Before You Dig") notification procedures. Apprentices develop practical skills in transferring and establishing elevations, laying out trench lines, performing builder's level runs, and utilizing specialty tools and equipment in accordance with industry standards and safety regulations. Designed for indentured apprentices registered with the State of California who are pursuing careers in the plumbing industry. Total of 27 hours lecture and 13 hours laboratory.

**Grade Mode:** Letter Grade

**PLMB 110 FUEL GAS SYSTEMS****2 unit****Prerequisite(s):** PLMB 100 and PLMB 102

**Enrollment Limitation:** *Per California Code of Regulations, enrollment is limited to plumbing and pipefitting students who have been admitted to participating United Association Local Unions within Southern California Pipe Trades District Council 16*

This course focuses on the installation and sizing of fuel gas distribution systems in accordance with the Uniform Plumbing Code (UPC). Topics include approved materials and installation standards for natural gas and propane systems, appliance connections, combustion air requirements, and system sizing using the longest length and branch length methods at multiple delivery pressures. Emphasis is placed on accurate code navigation, proper system design calculations, and application of code requirements to ensure safe and compliant fuel gas installations. Designed for indentured plumbing apprentices registered with the State of California who are pursuing careers in the plumbing industry. Total of 40 hours lecture.

**Grade Mode:** Letter Grade