

# APPRENTICESHIP - PLUMBING TECHNOLOGY

## Program Description

The Associate in Science in Plumbing Technology degree program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry, working to protect the health and safety of the community by piping pure water to commercial and industrial buildings for drinking, cooking, washing, cleaning, manufacturing, or personal use, and removing waste water after it has served its purpose. Students earning an associate degree increase their marketability and employment opportunities. The apprenticeship program—which includes coursework, lab work, and on-the-job training—involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, related mathematics and science, and storage. Students will learn to read blueprints, apply layout and install, as well as estimate and repair both supply and waste water systems. The Associate in Science in Plumbing Technology degree builds on the Certificate of Achievement in Plumbing Technology by adding requirements for general education courses and electives.

The Certificate of Achievement in Residential Plumbing program is also conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 6,900 hours of on-the-job training. After 4 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry, working to install and maintain waste lines, hot and cold water piping, and gas systems, including piping, accessories, fixtures, and appliances to single and multiple family dwellings as well as hotels and motels. The apprenticeship program—which includes coursework, lab work, and on-the-job training—involves learning about the assessment, installation, maintenance, and repair of residential and hotel/motel pipe systems, effective and safe tool use, material applications, related mathematics and science, and storage. Students will learn to read blueprints, apply layout and install, as well as estimate and repair both supply and waste water systems.

Students are admitted to the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Enrollment in apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section 3074.3.

Learn more about the program on the [Apprenticeship website](#).

## Program Learning Outcomes

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove plumbing systems such as

drain waste and ventilation systems, systems for various industrial fluids, public or private water systems, and gas piping systems.

- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter plumbing systems, including drain waste and ventilation systems, systems for various industrial fluids, public or private water systems, and gas piping systems.

## Career Opportunities

Graduates of the Plumbing Technology certificate and degree program will be prepared to work as a Foreman, General Foreman, Superintendent, Project Manager, Estimator, Detailer, Building Trades Inspector, Building Trades Instructor, and Union Business Agent/Business Manager in the energy, biopharmaceutical, healthcare, aerospace, construction, housing, water treatment, and food and beverage processing industries. Graduates of the Residential Plumbing certificate program will be employable as Journeyman Residential Plumber, Foreman, and General Foreman, working in residential construction, and repair of existing structures.

## Award Type(s)

- AS = Associate in Science Degree
- CA = Certificate of Achievement

## Units Required

- Major: 67.5
- Certificate(s): 20-67.5

## Associate Degree Requirements

Code	Title	Units
<b>English Proficiency</b>		
Select one of the following:		
ENGL 1A	COMPOSITION & READING	5
ENGL 1AH	HONORS COMPOSITION & READING	5
ESLL 26	ADVANCED COMPOSITION & READING	5
or equivalent		
<b>Ethnic Studies</b>		
Any course in the ETHN (Ethnic Studies) subject code, currently approved for Area F of CSU GE and Area 7 of IGETC		
<b>Mathematics Proficiency</b>		
College-level math course at or above the level of Intermediate Algebra		

A minimum of 90 units is required<sup>1</sup> to include:

- Completion of one of the following general education patterns: Foothill General Education, CSU General Education Breadth Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
- Core courses (67.5 units)

<sup>1</sup> Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

**Note:** All courses pertaining to the major must be taken for a letter grade. In addition, a grade of "C" or better is required for all core courses used for the degree or certificates.

## Core and Support Courses

Code	Title	Units
<b>Core Courses</b>		
APPT 129	SPECIAL TOPICS	3.5
APPT 130	REVIEW & TURNOUT	3.5
APPT 131	P-101 BASIC PLUMBING SKILLS	7.5
APPT 132	P-102 APPLIED & RELATED THEORY	7
APPT 133	P-201 BEGINNING DRAWING & DESIGN	5
APPT 134A	P-202A RIGGING; LAYOUT	2.5
APPT 134B	INDUSTRIAL SAFETY	4.5
APPT 135A	P-301A PLUMBING FIXTURES	2.5
APPT 135B	P-301B PLUMBING CODES	4.5
APPT 136	P-302 ADVANCED TRADE MATH FOR PLUMBERS	7
APPT 137A	P-401A WATER SYSTEMS	4.5
APPT 137B	P-401B APPLIED WELDING	1.5
APPT 138	P-402 ADVANCED DRAWING & BLUEPRINT READING	7
APPT 139A	PROCESS PIPING	3.5
APPT 139B	MEDICAL GAS INSTALLATIONS	3.5
<b>Total Units</b>		<b>67.5</b>

APPT 127	RESIDENTIAL PLUMBING CODE	2.5
APPT 128	RESIDENTIAL BACKFLOW	2.5
<b>Total Units</b>		<b>20</b>

## Elective Courses

These courses are recommended to fulfill the additional elective requirements to reach 90 units for the degree as they augment the major.

Code	Title	Units
BUSI 70	BUSINESS & PROFESSIONAL ETHICS	4
CWE 60A	OCCUPATIONAL WORK EXPERIENCE: APPRENTICE	10.5

**Note:** Additionally, students who complete the core courses will satisfy Foothill GE Area II, English; Area III, Natural Sciences; Area IV, Social & Behavioral Sciences; Area V, Communication & Analytical Thinking; Area VI, United States Cultures & Communities; and Area VII, Lifelong Learning.

## Certificate Requirements

### Certificate of Achievement in Plumbing Technology

- Units: 67.5

The certificate of achievement is awarded upon completion of the core courses. General education courses are not required.

Currently offered at: San Jose.

### Certificate of Achievement in Residential Plumbing

- Units: 20

Code	Title	Units
APPT 121	INTRODUCTION TO RESIDENTIAL PLUMBING, SAFETY & TOOLS	2.5
APPT 122	RESIDENTIAL SYSTEMS, WASTE, WATER & GAS SIZING	2.5
APPT 123	RESIDENTIAL GAS & WATER INSTALLATIONS	2.5
APPT 124	MATHEMATICS FOR RESIDENTIAL PLUMBING	2.5
APPT 125	RESIDENTIAL BLUEPRINT READING & DRAWING	2.5
APPT 126	RESIDENTIAL PIPING LAYOUT & INSTALLATION; RESIDENTIAL FIXTURES	2.5