

Plumbing

PLUMBING – PLUMB

Open, Dean

Workforce Development and Engineering Technologies
Administration Building, Room 121

Possible career opportunities

In collaboration with Plumbers and Steamfitters Union Local 159 email: info@plumbers159.org and Plumbers-Steamfitters-Refrigeration Union Local 342 www.ua342.org, DVC offers two five-year apprenticeship programs: steamfitting and plumbing. Apprenticeship is training that is designed to prepare an individual for a career in the skilled crafts and trades. Apprentices develop technical skills, experience the sharing of assignments and see how technical tasks relate specifically with theoretical knowledge and interpretation. Apprentices earn a wage while learning. Enrollment in this program is restricted. You must be registered as an apprentice with the State of California to participate in the program and accepted into the apprenticeship program by our Union partners.

Plumbers-Steamfitters-Refrigeration Union Local 342,
Joint Apprenticeship and Journeymen Training Office

935 Detroit Avenue
Concord, CA 94518-2501
925-686-0730

Plumbers and Steamfitters Local 159
1308 Roman Way
Martinez, CA 94553
800-443-0220 or
925-229-0883
email: info@plumbers159.org

Program-level student learning outcomes

Program learning outcomes are subject to change. The most current list of program learning outcomes for each program is published on the DVC website at www.dvc.edu/slo.

**Associate in science degree
Plumbing**

Students completing the program will be able to...

- A. discuss the role the plumber plays in a safe work site.
- B. apply mathematical formulae used in plumbing.
- C. demonstrate knowledge of the hazards of cross connection in the potable water system.
- D. use the proper method to install medical gas piping.
- E. explain the responsibilities of the many agencies, departments, and specific districts that require variances or permits for construction.
- F. demonstrate advanced worksite operations including T-drilling, hot taps, and freeze pipe installation.

Upon successful completion of the program, the student will have the necessary knowledge and skill for a career in residential, commercial, and industrial plumbing. Reading of blueprints, layout, estimating, installation of piping systems and fixtures, repair of supply and waste water systems are just some of the skills that will be mastered during this program.

A student is eligible for graduation with an associate in science degree after the satisfactory completion of a minimum of 60 units.

To earn an associate in science degree with a major in plumbing, students must complete each course used to meet a major requirements with a "C" grade or higher and complete general education requirements as listed in the catalog. Degree requirements can be completed by attending classes in the day, the evening, or both. Certain courses may satisfy both major and general education requirements; however, the units are only counted once. General Education Option 1 (DVC General Education) is appropriate for students who do not intend to transfer. DVC Plumbing students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select either General Education Option 2 (IGETC) or Option 3 (CSU GE).

<i>major requirements:</i>	<i>units</i>
PLUMB-110 OSHA-CPR.....	1.5-2.5
PLUMB-111 Trade Mathematics.....	1.5-2.5
PLUMB-112 Water Supply Systems.....	1.5-2.5
PLUMB-113 Sewage Disposal.....	1.5-2.5
PLUMB-114 Plumbing System Service and Repair	1.5-2.5
PLUMB-115 Construction Management in Plumbing..	1.5-3
PLUMB-116 Medical Gas and Vacuum Systems.....	1.5-2.5
PLUMB-117 Related Science in the Piping Trades.....	1.5-2.5
PLUMB-118 Beginning Drawing and Plan Reading for the Piping Trades	1.5-2.5
PLUMB-119 Advanced Drawing in the Piping Trades..	1.5-2.5
PLUMB-120 Plumbing Tool Workshop I.....	1.5-2.5
PLUMB-121 Plumbing Tool Workshop II.....	1.5-2.5
PLUMB-122 Plumbing Code I.....	1.5-2.5
PLUMB-123 Plumbing Code II.....	1.5-2.5
PLUMB-124 Welding for Plumbers.....	1.5-2.5
PLUMB-125 Electricity for Plumbing.....	1.5-2.5
PLUMB-126 Gas Installation in Plumbing	1.5-2.5
PLUMB-127 Backflow Prevention	1.5-2.5
PLUMB-128 Plumbing Fixtures	1.5-2.5
PLUMB-129 Certification Preparation.....	1.5-2.5
total minimum required units	30

**Certificate of achievement
Plumbing**

Students completing the program will be able to...

- A. discuss the role the plumber plays in a safe work site.
- B. apply mathematical formulae used in plumbing.
- C. demonstrate knowledge of the hazards of cross connection in the potable water system.
- D. use the proper method to install medical gas piping.
- E. explain the responsibilities of the many agencies, departments, and specific districts that require variances or permits for construction.
- F. demonstrate advanced worksite operations including T-drilling, hot taps, and freeze pipe installation.

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<i>required courses:</i>	<i>units</i>
<i>complete at least 28 units from:</i>	
PLUMB-112 Water Supply Systems.....	1.5-2.5
PLUMB-113 Sewage Disposal.....	1.5-2.5
PLUMB-114 Plumbing System Service and Repair	1.5-2.5
PLUMB-115 Construction Management in Plumbing..	1.5-3
PLUMB-116 Medical Gas and Vacuum Systems	1.5-2.5
PLUMB-117 Related Science in the Piping Trades.....	1.5-2.5
PLUMB-118 Beginning Drawing and Plan Reading for the Piping Trades	1.5-2.5
PLUMB-119 Advanced Drawing in the Piping Trades..	1.5-2.5
PLUMB-120 Plumbing Tool Workshop I.....	1.5-2.5
PLUMB-121 Plumbing Tool Workshop II.....	1.5-2.5
PLUMB-122 Plumbing Code I.....	1.5-2.5
PLUMB-123 Plumbing Code II.....	1.5-2.5
PLUMB-124 Welding for Plumbers.....	1.5-2.5
PLUMB-125 Electricity for Plumbing.....	1.5-2.5
PLUMB-126 Gas Installation in Plumbing	1.5-2.5
PLUMB-127 Backflow Prevention	1.5-2.5
PLUMB-128 Plumbing Fixtures	1.5-2.5
PLUMB-129 Certification Preparation.....	1.5-2.5
total minimum required units	28

**Certificate of accomplishment
Plumbing**

Students completing the program will be able to...

- A. discuss the role the plumber plays in a safe work site.
- B. apply mathematical formulae used in plumbing.
- C. demonstrate knowledge of the hazards of cross connection in the potable water system.
- D. use the proper method to install medical gas piping.

<i>required courses:</i>	<i>units</i>
<i>complete at least 10 units from:</i>	
PLUMB-110 OSHA-CPR.....	1.5-2.5
PLUMB-111 Trade Mathematics.....	1.5-2.5
PLUMB-112 Water Supply Systems.....	1.5-2.5
PLUMB-113 Sewage Disposal.....	1.5-2.5
PLUMB-114 Plumbing System Service and Repair	1.5-2.5
PLUMB-115 Construction Management in Plumbing..	1.5-3
PLUMB-116 Medical Gas and Vacuum Systems.....	1.5-2.5
total minimum required units	10

PLUMB-110 OSHA-CPR

- 1.5-2.5 units LR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section. This class is the same as STMFT-110.

This course covers the regulations governed by OSHA 30 that provide and recognize safe work practices. The student will receive certification in Cardio-Pulmonary Resuscitation and First Aid.

PLUMB-111 Trade Mathematics

- 1.5-2.5 units LR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section. This class is the same as STMFT-111.

This course covers the approaches to mathematical problem solving used in pipe fitting and metric conversion.

PLUMB-112 Water Supply Systems

- 1.5-2.5 units LR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents an introduction to the principles and methods of water distribution and treatment regarding water supply systems.

PLUMB-113 Sewage Disposal

- 1.5-2.5 units LR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

The course introduces the principles and methods of sewage disposal for residential and commercial buildings.

PLUMB-114 Plumbing System Service and Repair

- 1.5-2.5 units LR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents an introduction to the planning, troubleshooting and repair of plumbing systems.

PLUMB-115 Construction Management in Plumbing

- 1.5-3 unitsLR
- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course offers an introduction to construction management in plumbing. Topics include administrative procedures, plans and specifications, scheduling, permits, variances, and forms of communication.

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PLUMB-116 Medical Gas and Vacuum Systems

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course covers the requirements and standards of medical gas and vacuum system installation and maintenance.

PLUMB-117 Related Science in the Piping Trades

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section. This class is the same as STMFT-117.

This course covers the scientific and mechanical principles that are basic to the work of the piping industry.

PLUMB-118 Beginning Drawing and Plan Reading for the Piping Trades

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section. This class is the same as STMFT-118.

This course covers the interpretation of drawings and sketches associated with piping installation.

PLUMB-119 Advanced Drawing in the Piping Trades

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section. This class is the same as STMFT-119.

Students in this course will interpret, coordinate and make drawings and sketches associated with piping installation.

PLUMB-120 Plumbing Tool Workshop I

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course covers the practical and theoretical aspects of plumbing tool processes. Topics include the proper use of basic trade tools for processes such as soldering, brazing, threading pipes, and installing drainage. Safe work practices will be emphasized.

PLUMB-121 Plumbing Tool Workshop II

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course covers the practical and theoretical aspects of plumbing tool processes. Topics will include the proper use and of advanced trade tools for processes such as T-drilling, hot taps, and freeze pipe installation. Safe work practices will be emphasized.

PLUMB-122 Plumbing Code I

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents articles 100-900 of the Uniform Plumbing Code.

PLUMB-123 Plumbing Code II

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents articles 901-1622 of the Uniform Plumbing Code.

PLUMB-124 Welding for Plumbers

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents the techniques and methods of welding for plumbers. Standard safety practices from the Occupational Safety and Health Administration (OSHA), American National Standards Institute (ANSI), and Compliance, Safety, Accountability (CSA) are emphasized.

PLUMB-125 Electricity for Plumbing

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course introduces the specialized knowledge and techniques required for the effective operation and function of electrical systems for plumbing applications.

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PLUMB-126 Gas Installation in Plumbing

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents the principles and installation methods of gas piping systems. Safety practices are emphasized.

PLUMB-127 Backflow Prevention

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents the approved methods and appropriate devices to ensure backflow and cross-connection are eliminated.

PLUMB-128 Plumbing Fixtures

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents modern plumbing fixtures and appliances. Topics include proper selection, installation, and maintenance.

PLUMB-129 Certification Preparation

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course presents the information necessary to sit for the state plumbing certification examination. The course will expand upon information presented in other plumbing courses within the program to emphasize knowledge required for passing this exam.

PLUMB-130 Green Awareness

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

The course provides an overview of “green” concepts as applied to mechanical systems and high-efficiency plumbing technologies that support water conservation.

PLUMB-131 Blueprint Reading for Plumbing

1.5-2.5 units LR

- Variable hours
- Note: This program is sponsored by the International Brotherhood of Steamfitters and Plumbers and is for apprenticeship only. Course enrollment is limited to those who have been accepted by the union local responsible for the section.

This course introduces the interpretation of blueprints, specifications, and other construction documents for the plumbing industry.

PLUMB-150 Topics in Plumbing

.3-4 units SC

- Variable hours

A supplemental course in plumbing to provide a study of current concepts and problems in plumbing. Specific topics will be announced in the schedule of classes.

PLUMB-298 Independent Study

.5-3 units SC

- Variable hours
- Note: Submission of acceptable educational contract to department and Instruction Office is required.

This course is designed for advanced students who wish to conduct additional research, a special project, or learning activities in a specific discipline/subject area and is not intended to replace an existing course. The student and instructor develop a written contract that includes objectives to be achieved, activities and procedures to accomplish the study project, and the means by which the supervising instructor may assess accomplishment.

PLUMB-299 Student Instructional Assistant

.5-3 units SC

- Variable hours
- Note: Applications must be approved through the Instruction Office. Students must be supervised by a DVC instructor.

Students work as instructional assistants, lab assistants and research assistants in this department. The instructional assistants function as group discussion leaders, meet and assist students with problems and projects, or help instructors by setting up laboratory or demonstration apparatus. Students may not assist in course sections in which they are currently enrolled.