

APPT 189: WELDING/ OXYGEN-ACETYLENE

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	4
Hours:	20 lecture, 103 laboratory per quarter (123 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Plumbing & Pipefitting Apprenticeship Program.
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 demonstrate proper flame cutting techniques on steel plate and pipe.
- A student will be able to demonstrate the proper assembly of oxy-fuel equipment.
- A student will be able to describe electrodes and the fundamental operating characteristics of SMAW.

Description

Provides students with a working knowledge of welding principles as they relate to Shielded Metal Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW). Students will gain knowledge in the principles of oxygen/acetylene cutting and welding.

Course Objectives

The student will be able to:

- Perform pipefitting and welding
- Perform oxy-acetylene cutting in the pipefitting industry
- Learn safety related to welding and burning

Course Content

- Safety
 - Review safety specifications for set up and teardown
 - Review OSHA practices
- Welding and cutting techniques
 - Weld metal plate and pipe to industry standards
 - Prepare pipe ends for welding
 - Complete test coupon in 6G position in both SMAW and GTAW applications
 - Become competent with oxy/acetylene cutting torch

Lab Content

Students will work individually and in teams to practice the welding and burning techniques used on the job site in this laboratory.

- Basic Welding Techniques

- Pipe Fitting and Welding
- Oxy-fuel Cutting SMAW Welding Techniques
- Welding Safety Practices
- GTAW Welding Techniques

Special Facilities and/or Equipment

- Laboratory with welding equipment
- Welding and oxy-acetylene torch
- Personal protective equipment

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Written examination
- Hands-on demonstration
- Chapter quizzes
- Group and classroom participation
- Punctuality

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Discussion
- Laboratory
- Demonstration
- Lecture

Representative Text(s) and Other Materials

International Pipe Trades Joint Training Committee, Inc.. [Welding Practices & Procedures for the Pipe Trades](#). 2016.

International Pipe Trades Joint Training Committee, Inc.. [Oxy-Fuel Cutting & Welding and Shielded Metal-Arc Welding](#). 2007.

Although one or more of these texts are older than the recommended 5 years they conform to national training standards and are considered seminal works in the discipline.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- Readings from the textbooks. Examples include:
 - Perform lay-out of oxy-fuel cutting and welding procedures
 - Use instruments for piping systems layouts
- Writing assignments. Examples include:
 - Perform math calculations for pipe measurements
 - Utilize geometry formulas for piping systems
 - Apply formulas from oxy-fuel cutting and welding

Discipline(s)

Plumbing OR Welding