

APPT 137B: P-401B APPLIED WELDING

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	1.5
Hours:	54 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Plumbing Technology Apprenticeship Program.
Advisory:	Not open to students with credit in APPR 117.
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 successful student will be able to demonstrate the proper assembly of oxy-fuel equipment.
- A successful student will be able to demonstrate proper flame cutting techniques on steel plate and pipe.
- A successful student will be able to describe electrodes and the fundamental operating characteristics of SMAW.

Description

Instruction and practice in oxy-fuel cutting, oxy-fuel welding and arc welding of steel plate and pipe. Safety and accuracy in measuring, lay-out and torch handling is emphasized.

Course Objectives

The student will be able to:

- Describe the basic theoretical principles associated with cutting and welding steel.
- Safely perform cutting and welding processes.
- Set-up and use oxy-fuel and arc welding equipment.
- Measure, lay-out, cut and weld steel plate and pipe for fabrication.

Course Content

- Describe the basic theoretical principles associated with cutting and welding steel
 - Weld ability of metals
 - Welding processes and applications
 - Filler metal selection
 - Welding joint design
- Safely perform cutting and welding processes
 - Burn prevention
 - Eye, ear, and respiratory protection
 - Ventilation

- Electrical and fire protection
- Equipment maintenance
- Set-up and use oxy-fuel and arc welding equipment
 - Equipment set-up and operation
 - Fuel gases
 - Cutting torch tips
 - Chemistry and physics of flame cutting
 - Oxy-fuel welding
 - Pipe cutting and layout
- Measure, lay-out, cut and weld steel plate and pipe for fabrication
 - Welding equipment set-up and operation
 - Arc welding of plate and pipe

Lab Content

Students will work individually and in teams on cutting and welding steel plate and pipe.

Special Facilities and/or Equipment

Laboratory with cutting and welding tools.

Method(s) of Evaluation

Results of written exercises and final examination
Satisfactory completion of hands-on projects
Maintenance of a student's workbook with questions drawn from text
Group and classroom participation

Method(s) of Instruction

Lecture
Lab Assignment
Group Discussion
Demonstration

Representative Text(s) and Other Materials

Jeffus, Larry. Welding Principles and Applications, 7th ed.. 2012.

International Pipe Trades Joint Training Committee. Oxy-Fuel Practices. 2016.

International Pipe Trades Joint Training Committee. Welding Practices & Procedures for the Pipe Trades. 2016.

KORE-TECKX, Inc.. The Pipe Fitters Field Book. 2015.

NOTE: 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. We will adopt the next edition of each text, as it is published.

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

- Readings from assigned textbook Welding Principles and Applications
 - Chapter 2: Safety in Welding
 - Chapter 5: Shielded Metal Arc Equipment and Setup
- Writing assignments given in the laboratory
 - Essays and exams on welding safety

2. Essay and exams on welding processes, applications and filler metal selection

Discipline(s)

Plumbing