APSM 104: SMQ-4 SOLDERING & COMMON SEAMS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	2
Hours:	18 lecture, 22 laboratory per quarter (40 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal 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 successful student will be able to demonstrate flat and vertical soldering skills on various metals to industry standards.
- A successful student will be able to maintain and adjust resistance spot welding machine.

Description

Course covers basic soldering and seam fabrication techniques. Includes soldering lap and vertical seams, soldering with various materials and flux, alternate seam fabrication, and fabrication of non-soldered seams.

Course Objectives

The student will be able to:
A. Know and apply field and shop soldering safety requirements and preparations
B. Demonstrate appropriate use of basic soldering applications and joint design
C. Demonstrate flat and vertical soldering skills to minimum industry standards
D. Perform basic spotwelder tip maintenance and adjustment
E. Fabricate common sheet metal seams
F. Properly use different soldering flux requirements for different materials

Course Content

A. Soldering safety requirements and preparations for both field and shop

B. Basic soldering applications and joint design
1. Soldering introduction and demonstration
2. Tinning an iron
C. Flat and vertical soldering
1. Soldering vertical lap seams
D. Basic spot welder tip maintenance
1. Using a spot welder
E. Common sheet metal seams
1. Soldering lap seams
2. Alternate seam fabrication
F. Different soldering flux requirements
1. Soldering with different materials and flux
2. Fabrication of non-soldered seams
3. Assembly of soldered items
4. Fabrication and soldering review and testing

Lab Content

Students will work together and individually on the following:
A. Observation and practice in soldering preparations
B. Skill in safely using a soldering iron and related equipment for soldering sheet metal seams
C. Equipment safety
D. Fire protection
E. Working around acids, lead, and other toxic materials and chemicals
F. Safe handling practices

Special Facilities and/or Equipment

A. Laboratory with sheet metal tools
B. Personal protective equipment

Method(s) of Evaluation

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

Results of written quizzes and tests
Shop participation
Comprehensive written final examination
Comprehensive final project
Evaluation of progress by weekly assignment
Adequately perform to minimum industry standards on class projects related to seam fabrication and soldering

Method(s) of Instruction

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

Discussion
Laboratory instruction
Demonstration

Representative Text(s) and Other Materials

International Training Institute. Soldering in the Sheet Metal Industry, International Training Institute for the Sheet Metal and Air Conditioning Industry (student manual and workbook). 2007.

This is the standard Sheet Metal textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course.

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

A. Reading assignment, from textbook:

1. Read pages 11-19 in Unit A, "Safety and Preparation"
B. Writing assignment, from textbook:
1. Answer written review questions on page 20 regarding safety and preparation

Discipline(s)

Sheet Metal