

# APSM 118: SMQ-18 INDUSTRIAL & STAINLESS STEEL INTRODUCTION

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	1.5
Hours:	16 lecture, 24 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 calculate the bend allowances for heavy gauge metal.
- A successful student will be able to layout, fabricate, and finish a heavy gauge metal project using appropriate equipment.

## Description

Course introduces heavy gauge industrial sheet metal techniques and stainless steel applications used in the industry. Topics include calculations of bend allowances for heavy gauge metal, layout and forming heavy gauge metal, using a blowpipe, material handling equipment, marking, forming and surface finishing stainless steel products. Safety and material handling practices are reviewed.

## Course Objectives

The student will be able to:

- Calculate the bend allowances for heavy gauge metal
- Lay out and form heavy gauge metal using appropriate equipment
- Identify blowpipe and material handling systems
- Identify common industrial sheet metal materials
- Perform a stainless steel finishing exercise
- Fabricate an industrial shop project
- Work safely in an industrial setting
- Understand typical industrial field installation requirements and skills

## Course Content

- Calculating bend allowances for heavy gauge metal
  - Bend allowances and industrial math
- Lay out and form heavy gauge metal
  - Marking and notching heavy metal and stainless steel
  - Use equipment suitable for heavy gauge metal
- Blowpipe and material handling systems
  - Blowpipe processes

- Material handling safety
- Common industrial sheet metal materials
  - Characteristics of materials
  - Forming industrial materials
- Perform a stainless steel finishing exercise
  - Grinding and polishing equipment
  - Polishing techniques
- Shop projects
  - Building a shop project using 16 ga or heavier metal
- Work safely in an industrial setting
  - OSHA and other guidelines in the shop and field
- Understand typical industrial field installation requirements, protocol and skills

## Lab Content

Lab content includes practice of heavy gauge metal working techniques from the lessons, while developing essential hand skills for quality work involving layout, forming, assembly and finishing of steel and stainless steel heavy gauge projects.

## Special Facilities and/or Equipment

- Laboratory with sheet metal tools
- 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 assignments

## 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. [Industrial Sheet Metal and Welding Curriculum, International Training Institute for the Sheet Metal and Air Conditioning Industry \(student manual and workbook\)](#). 2007.

International Training Institute. [Layout Curriculum for the Sheet Metal Industry, International Training Institute for the Sheet Metal and Air Conditioning Industry \(student manual and workbook\)](#). 2010.

These are the standard Sheet Metal textbooks/workbooks used for this course. Although one or more may not be within 5 years of the required published date, they are the most current books 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 Unit 5, regarding industrial field skills.

B. Writing assignment from textbook:

1. Complete pages 53-58, Review Questions, regarding field skills.

## **Discipline(s)**

Sheet Metal