# APSM 117: SMQ-17 SUBMITTALS & SHOP DRAWINGS

## Foothill College Course Outline of Record

| Heading | Value |
|---|---|
| **Effective Term:** | Summer 2021 |
| **Units:** | 2.5 |
| **Hours:** | 34 lecture, 6 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 Use a submittal to find specific information about a manufactured item.
- A successful student will be able to make a detailed material list including sizes, model numbers, and ratings from contract documents.

## Description

This course continues to build on job specification and blueprint reading instructions and adds the creation of a shop drawing and use of submittals as done in the sheet metal industry. This includes reading typical plans, specifications and submittals, identifying specific information on the submittal, applying a numbering system to the shop drawing, creating material lists from the shop drawing or submittal, and field use of drawings and submittals.

## Course Objectives

The student will be able to:
A. Read typical submittals
B. Use a submittal to find specific information about a manufactured item
C. Create and read a shop drawing utilizing information from plans, specifications and submittals for a construction project
D. Apply a numbering system to a shop drawing for installation of components
E. Reference a detailed equipment schedule including sizes, model numbers, and ratings, to relate to submittals for details needed
F. Provide data needed for computerized fabrication using input sheets
G. Create shop drawings based on information given
H. Use submittals and shop drawings in the field

## Course Content

A. Read typical submittals
1. HVAC equipment submittals
2. Duct accessory submittals
3. Architectural sheet metal submittals
B. Use a submittal to find specific information about a manufactured item
1. Obtain information about installation, fabrication, ordering information and delivery time
2. Sizes and other specifications needed for installation or for fabrication

3. Other design information
C. Understand methods used to create a shop drawing utilizing information from plans, specifications, and submittals for a construction project
1. Gather information and resolve issues
2. Communication of information
3. Produce a shop drawing
D. Apply a numbering system to a shop drawing for order of installation
1. Establish a start point
2. Establish a easy-to-follow numbering code
E. Reference a detailed equipment schedule including sizes, model numbers, and ratings, to relate to submittals for details needed
1. Locate equipment both in submittals and on equipment schedule
2. Identify information typically included in the schedule versus the submittals
F. Provide data needed for computerized fabrication using input sheets
1. Field created sketches for fabrication tickets
2. Typical formats for fabrication orders
G. Create shop drawings based on information given
1. Basic shop drawing assignment
2. Advanced shop drawing assignments
H. Use submittals and shop drawings in the shop and on the job site
1. Practice reading shop drawings and submittals prepared by others
2. Verify information on shop drawings with job conditions

## Lab Content

Students will work individually and in teams to:
A. Practice in reading shop drawings
B. Practice in understanding manufacturers' submittals and associating details with actual field conditions
C. Utilize information from design drawing and manufacturers' submittals to create shop drawings
D. Practice communicating fabrication details through the creation of shop drawings

## 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 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. Reading Plans and Specs, International Training Institute for the Sheet Metal and Air Conditioning Industry (student manual and workbook; selected specifications and submittals; selected plans). 2006.

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:
1. Read text in Module 5, Unit 1, as an overview of shop drawings
B. Writing assignment:
1. Complete the Module 5, Activity 1, Shop Drawing Take-Off Activity

## Discipline(s)

Sheet Metal