

# APSM 120: SMQ-20 MEASURING & SKETCHING

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	1.5
Hours:	14 lecture, 26 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 field measuring and Sketching techniques used for shop fabrication and installation.
- A successful student will be able to Interpret the communication system used for fabrication of symbols, shop parameters, conventions, abbreviations and bend directions.

## Description

Field measuring and sketching techniques are discussed in detail as it relates to sheet metal work. Topics covered include measuring techniques and safety, reference points, calculations, and industry accepted symbols, views and representations. Students measure and produce sketches.

## Course Objectives

The student will be able to:

- Demonstrate field measuring and sketching techniques used for shop fabrication and installation
- Use math equations for finding angles, true lengths, and chords
- Interpret the communication system used for fabrication (symbols, shop parameters and conventions, abbreviations, bend directions)
- Properly fill out various types of cut sheets

## Course Content

- Demonstrate field measuring and sketching techniques used for shop fabrication and installation
  - Field measuring for shop fabrication
  - Sketching techniques for field installations
- Use math equations for finding angles, true lengths, offsets and chords
- Interpret the communication system used for fabrication (symbols, shop parameters and conventions, abbreviations, bend directions)
  - Shop procedures and practices
  - Pictorial drawing (isometric, oblique, perspective)
- Properly fill out various types of cut sheets

- Typical sketch symbols and views
- Formats for input to computerized fabrication systems

## Lab Content

Lab content includes practicing methods of measurement using a simulation of job site conditions, using various measuring devices and related calculations and resulting in field sketches.

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

International Training Institute. HVAC, International Training Institute for the Sheet Metal and Air Conditioning Industry (student manual). 2005.

International Training Institute. Core Sheet Metal Curriculum, International Training Institute for the Sheet Metal and Air Conditioning Industry (student manual). 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

- Reading assignment, from textbook:
  - Read the unit discussing field measuring techniques.
- Writing assignment:
  - Practice hand-sketching several sheet metal items the students would have measured for, using industry accepted abbreviations and conventions, in order to communicate in detail the items to be made.

## **Discipline(s)**

Sheet Metal