

APSM 155A: SHEET METAL FABRICATION

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2022
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 layout and fabricate a rectangular duct "transition" fitting.
- A successful student will be able to safely use common sheet metal shop equipment to form common seams.

Description

Students learn essential sheet metal fabrication as required in HVAC duct systems. Students build seams and selected common duct fittings.

Course Objectives

Students will be able to:

1. Demonstrate use of basic sheet metal shop equipment
2. Demonstrate use of seams, locks, edges, and allowances
3. Perform basic layout
4. Measure and fabricate duct plenums and transitions
5. Identify other fittings utilized to efficiently convey air in a duct system

Course Content

1. Basic sheet metal shop equipment
 - a. Explain the purpose and use of different types of shop equipment (Lec and Lab)
 - b. Safely use the shop equipment designated by instructor (Lec and Lab)
2. Seams, locks, edges, and allowances
 - a. Form and use hem and double hem (Lec and Lab)
 - b. Form and use standing seam and Pittsburgh seam (Lec and Lab)
 - c. Fabricate and use an end cap (Lec and Lab)
 - d. Form and use a clinch lock
3. Basic layout
 - a. Name common layout tools and explain their use (Lec and Lab)
4. Measure and fabricate duct plenums and transitions

- a. Layout and fabricate a rectangular duct (Lec and Lab)
 - b. Layout and fabricate a rectangular transition (Lec and Lab)
5. Identify other fittings utilized to efficiently convey air in a duct system
 - a. Layout and fabricate an offset (Lec and Lab)
 - b. Layout and fabricate an elbow (Lec and Lab)
 - c. Layout and fabricate a saddle tap (Lec and Lab)
 - d. Layout and fabricate a 45 degree shoe tap (Lec and Lab)
 - e. Layout and fabricate a square to round (Lec and Lab)

Lab Content

1. Safely measure and fabricate duct plenums and transitions

Special Facilities and/or Equipment

1. Laboratory with sheet metal service tools
2. Personal protective equipment
3. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address

Method(s) of Evaluation

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

Results of written quizzes and tests
 Responses in class discussions
 Comprehensive written final examination
 Comprehensive final project
 Demonstration of assigned skills to acceptable level per instructor

Method(s) of Instruction

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

Lecture
 Discussion
 Demonstration
 Lab assignments followed by discussion

Representative Text(s) and Other Materials

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.

This is the standard sheet metal textbook/workbook used for this course. Although it may not be within five 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

1. Sample reading assignment: From the textbook, Module 3, Square-to-round
2. Sample writing assignment: Students calculate stretch outs for blank offs (on separate sheet of paper) for the assigned transition project

Discipline(s)

Sheet Metal or Air Conditioning, Refrigeration, Heating