APSM 121: SMQ-21 FABRICATION & SHORTCUTS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	1
Hours:	8 lecture, 32 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 twisted fitting and marriage fitting.
- A successful student will be able to use layout short cut methods, OWL, slipped elbow, round eye and square-to-round.

Description

Theory and application of sheet metal fabrication and shortcuts used in residential and commercial construction are reviewed in this course. Students will gain a working knowledge of alternative fabrication techniques and theory. Geometry and math associated with fabrication are an integral part of this course. Jobsite conditions and fabrication of specialty items are emphasized.

Course Objectives

The student will be able to:
A. Lay out and fabricate specialty sheet metal items including twisted fitting, and marriage fitting with a drop check elbow, filter rack, and exhaust hood
B. Use alternative lay out and fabrication short cut methods (OWL, slipped elbow, round wye, square-to-round, etc.)
C. Discuss application of concepts practiced in this course for other situations

Course Content

A. Lay out and fabricate specialty sheet metal items
1. Lay out and fabricate a triangular twisted duct fitting
2. Demonstrate an understanding of slipping a check pattern and marriage fitting assembly techniques by fabricating the project assigned
3. Employ concepts of moisture control, fabrication sequence, and filter characteristics to design and fabricate an in-duct filter rack and housing to acceptable HVAC industry standards
4. Utilizing auxiliary views and typical hood design features, fabricate and exhaust hood
B. Use alternative lay out and fabrication short cut methods and views
1. OWL short cut
2. Slipped elbow short cut
3. Round wye short cuts
4. Square-to-round short cut
C. Discuss other applications
1. Effects on tolerances
2. Advantages of methods to apply

Lab Content

Lab content includes:
A. Demonstration and student practice in the use of sheet metal fabrication equipment in order to practice different fabrication techniques

B. Demonstration and student practice to apply lay out methods previously learned to new challenges
C. Demonstration and practice of simplified methods for certain sheet metal items
D. Design elements of hoods and student practice of hood fabrication

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 and presentation
Laboratory
Demonstration

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 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. Review triangulation, parallel line and radial line pattern development methods
B. Writing assignment:

1. Perform "OWL" field offset calculations, as assigned

Discipline(s)

Sheet Metal