APSM 108: SMQ-8 TRIANGULATION FITTINGS

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 layout and fabricate a single offset rectangular transition fitting to acceptable industry standards.
- A successful student will be able to layout and fabricate a square to round fitting to acceptable industry standards.

Description

This course covers triangulation, which is a versatile and higher level layout method, often used on more complicated patterns and in field measuring.

Course Objectives

The student will be able to:
A. Lay out and fabricate fittings using triangulation development to acceptable industry standards
B. Apply geometric construction techniques to triangulation lay out
C. Utilize the International Training Institute Calculator for alternative pattern lay out calculations
D. Calculate shear lists and pattern fabrication data for patterns developed with triangulation methods

Course Content

A. Lay out and fabricate fittings using triangulation development
1. Introduction to triangulation
2. Centered rectangular transition
3. Single offset transition
4. Compound transition
5. Centered square-to-rounds
6. Offset square-to-round
7. Transitional 90 degree drop elbow
8. Offset round taper
B. Apply geometric construction techniques to triangulation lay out
C. Utilize the International Training Institute Calculator for alternative pattern lay out calculations
D. Calculate shear lists and pattern fabrication data for patterns developed with triangulation methods
1. Calculate shear lists
2. Provide data needed for computerized pattern fabrication of triangulated patterns

Lab Content

Lab content includes demonstration and practice in pattern development and fabrication of several common sheet metal fittings using triangulation development techniques.

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. 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. Read the introductory lesson text explaining three basic principles used in the triangulation pattern development process.
B. Writing assignment:
1. Calculate shear lists per figure 74, page 144 in the student text, with dimensions given by instructor.

Discipline(s)

Sheet Metal