

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

Transfer course A.A. degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: AP SM 103 - Intermediate Processes

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS:

Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: Apprenticeship Sheet Metal 102.

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:

A continuation of Basic Processes, Mathematics and Drawing, with problems of unusual complexity and difficulty, job layout, architectural details, air ducts, vents and similar projects. CSU

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Understand and apply local, state and federal safety rules and regulations to specific job sites.
2. Recite the advantages of pursuing a career as a skilled craftsman in the sheet metal trade.
3. Explain trade terms, use of tools and materials and the fundamental processes of sheet metal work.
4. Apply the basic principles of layout, construction, fabrication and maintenance as related to the sheet metal industry.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Introduction (You and Your Employer)
 - A. Shop Procedures
 - B. Equipment and Safety

- II. Layout and Pattern Development
 - A. Review of Parallel Lines
 - B. Round Pipe Elbows
 - C. Shop Methods for Round Elbows
 - D. Round Tees
 - E. Off-Center Round Tees
 - F. Shop Methods for Round Tees
 - G. Round Offsets
 - H. Duct Transitions
 - I. Duct Change Elbows
 - J. Shop Methods for Change Elbows
 - K. Change and Drop "S" Offsets
 - L. Triangulation from an Elevation View
 - M. Introduction to Radial Lines
 - N. Shop Methods for Square to Rounds
 - O. Shop Methods for Round Tapers

- III. Shop Work
 - A. The Standard Hand Bending Brake
 - B. The Universal Box and Pan Brake
 - C. Rotary Machines - Combination Machines
 - D. Rotary Machines - Special Purpose
 - E. The Squaring Shear and the Throatless Shear
 - F. Bar Folders and Slip Rolls

- IV. Materials
 - A. Specially Formed Sheets
 - B. Special Types of Sheet Metal
 - C. Fasteners and Anchors
 - D. Grilles, Registers and Diffusers

- V. Mathematics
 - A. Reading Formulas
 - B. Using Formulas
 - C. Changing Decimals and Fractions
 - D. Square Root
 - E. Areas
 - F. The Steel Square

REQUIRED READING:

Schumacker, Fred and Claude Zinngrabe. Sheet Metal Workers Pocket Manual 1. Alexandria, Virginia: National Training Fund for the Sheet Metal and Air Conditioning Industry, 1988.

Sheet Metal Apprentice Textbook 2. 3rd Edition. Alexandria, Virginia: National Training Fund for the Sheet Metal and Air Conditioning Industry, 1995.

Sheet Metal Apprentice Workbook 2. 3rd Edition. Alexandria, Virginia: National Training Fund for the Sheet Metal and Air Conditioning Industry, 1995.

SUGGESTED READING:

Meyer, Leo. Sheet Metal Shop Practice. 4th Edition. Homewood, Virginia: American Technical Publishers, 1989.

Shaeffer, Ralph. Calculator Layout-The Numerical Concept, Volumes I & II. Portland, Oregon: Ralmar Press Publications, 1983.

Sheet Metal Workers Journal.

Snips Magazine.

REQUIRED WRITING:

The student shall complete a set of plans suitable for the manufacture of a project. A list of materials and all mathematical specifications shall accompany the plans. Student will complete various projects using mathematical skills and problem solving exercises as assigned. Minimum two pages for each set of plans.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short term classes.

Readings from the text, related materials and completion of project and workbook assignments.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply. (See guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

16%	Written/Workbook Assignments	A = 100-90
42%	Lab Projects	B = 89-80
42%	Exams	C = 79-70
		F = below 70

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit: 2.

If yes, identify specific provision of Title 5 Division 2 section(s) 55761-55763 and 58161 which qualifies course as repeatable: 58161-1-C

CONTACT PERSON: Director, Vocational Programs, Ext. 2286