

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Precision Machining & Automation Technology Program
Revision Date: August 21, 2023

I. CATALOG DESCRIPTION

Course Number: MACH1156
Course Title: Blueprint Reading & Drawing
Prerequisite(s): None
Catalog Description: Basic theory in blueprint reading, drafting, equipment utilization, lettering, and geometric constructions. Shape and size description, section views and freehand sketching.
Credit Hours: 2.0
Class Hours: 23
Lab Hours: 23
Total Contact Hours: 46

II. COURSE OBJECTIVES: *Course will:*

- A. Describe the different line styles and weights that are used on a drawing.
- B. Show how to properly represent a part in its orthographic projection.
- C. Demonstrate how to dimension a part properly.
- D. Explain how to properly tolerance a part.
- E. Examine the use of a title block, list of materials, and notes on a drawing.
- F. Illustrate the use of section views to clarify sections of a part on a drawing.
- G. Discuss the identification of different thread representations.
- H. Identify the use of callouts for various machining processes.
- I. Define the basics of GD&T and how it is used on a drawing.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Distinguish the uses and meanings of the different line styles and weights that are used on a drawing.
 - 2. Properly represent a part using orthographic projection.
 - 3. Sketch a 3D part from the orthographic projection on a drawing.
 - 4. Sketch the section view as described by the cutting plane line on a drawing.
 - 5. Read and interpret the notes found on mechanical prints.
 - 6. Interpret the size of the features of a part from the dimensions and tolerances given on a drawing.
 - 7. Find drawing information from the title block of a drawing.
 - 8. Identify special manufacturing specifications from the notes and callouts on a drawing.
 - 9. Find the proper material and location of a part from the list of materials on an assembly drawing.
 - 10. Identify different thread representations given on a drawing.
 - 11. Identify the basic symbols used with GD&T.
 - 12. Interpret the meaning of the basic GD&T block.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO 2: Written Communication
 - Outcome 3: Identify and evaluate evidence from a variety of printed, visual, and electronic sources.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A. Unit I
 - 1. Overview/terms
 - 2. Visualizing shapes
 - 3. Line usage
 - 4. Title blocks
- B. Unit II
 - 1. Applied Math
 - 2. Dimensioning
 - 3. Geometric dimensioning & tolerance
 - 4. Contours
 - 5. Holes
- C. Unit III
 - 1. Angles
 - 2. Threads
 - 3. Machining Details
 - 4. Section Views
 - 5. Auxiliary Views
 - 6. Assembly Drawings

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Goodheart-Wilcox, Barsamian, Michael A. and Gizelbach, Richard A., *Machine Trades Print Reading* (Refer to the CID or instructor for the current edition)
- B. Other Resources:
 - 1. Notebook
 - 2. Calculator
 - 3. 6" Steel Rule
 - 4. Pencil

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture
 - 2. Small and large group discussion
 - 3. Video presentation
 - 4. On-line aids
 - 5. Demonstrations
 - 6. Handouts
 - 7. Observations
 - 8. Assigned lab projects
 - 9. Field trips

VII. METHODS OF EVALUATION (*course outline will provide more detailed information*)

- A. Methods of evaluations, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Workbook
 - 2. Quizzes
 - 3. Tests
 - 4. Participation/class conduct

VIII. SPECIFIC COURSE REQUIREMENTS

- A. Completion of all tests, projects, assignments, and notebook (if required).

- B.** Program shop safety rules will be followed. Please see the course outline for any additional safety rules established by the instructor.