

**MACH 162 Course Outline as of Spring 2021****CATALOG INFORMATION**

Dept and Nbr: MACH 162 Title: BLUEPRINT READ FOR MACH

Full Title: Blueprint Reading for Machine and Related Industries

Last Reviewed: 3/9/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: MACH 52

**Catalog Description:**

Interpretation of engineering drawings and specification for machinists and welders: Explanation of the rules, symbols, and relationships covered in blueprints, assembly drawings and weldments. Emphasis on American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) Y14.5 Geometric Dimensioning and Tolerancing (GD&T) Standards and use of Coordinate Measuring Machine (CMM) for inspection of GDT specifications.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Interpretation of engineering drawings and specification for machinists and welders: Explanation of the rules, symbols, and relationships covered in blueprints, assembly drawings and weldments. Emphasis on American National Standards Institute (ANSI)/American

Society of Mechanical Engineers (ASME) Y14.5 Geometric Dimensioning and Tolerancing (GD&T) Standards and use of Coordinate Measuring Machine (CMM) for inspection of GDT specifications. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>		Effective:	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Analyze engineering drawings and blueprints to determine their parts, features, sizes, locations, tolerances, relationships, fits, finishes and material conditions.
2. Effectively express and exchange ideas through various modes of communication.
3. Demonstrate technical skills in keeping with the demands of their field of study.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Explain why drawings are so important to production planning and manufacturing.
2. Recognize viewing angles for the front, top, and side views of prints.
3. Identify the Alphabet of lines.
4. Describe the purpose of the title block and all of its meanings and uses.
5. Define the rules of dimensioning and the difference between size and location dimensions and dimensions with shop notes.
6. Identify basic geometric dimensioning, tolerancing, and datum referencing.

### **Topics and Scope:**

- I. Prints, Sketches and Drawings
  - A. Industrial prints
  - B. Manufacturing prints
  - C. Sketches
  - D. Assembly drawings

- E. Sectional drawings
- II. Views
  - A. Three-view drawings
  - B. Arrangement of views
  - C. Two-view drawings
  - D. One-view drawing
  - E. Auxiliary views
- III. Lines
  - A. Object lines
  - B. Hidden lines
  - C. Center lines
  - D. Extension lines
  - E. Projection lines
  - F. Other lines
  - G. Line combinations
- IV. Block and Zoning
  - A. Title block
  - B. Material block
  - C. Revision block
  - D. Print distribution block
  - E. Zoning
  - F. Special title block
- V. Dimensions and Notes
- VI. Geometric Dimensioning and Tolerancing

### Assignment:

1. Read and study assigned chapters in the assigned text
2. Homework problems and reports, such as Research and obtain blueprint sketch or drawing from manufacturing firm or employer
3. Reading and drawing sketches
4. Quizzes and final

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, reports

Problem solving  
15 - 20%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Reading and drawing sketches

Skill Demonstrations  
15 - 20%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes and final

Exams  
45 - 55%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and Professionalism

Other Category  
10 - 15%

**Representative Textbooks and Materials:**

Print Reading for Machinists. Taylor, David. Delmar. 6th ed. 2019