

**SOUTHEAST COMMUNITY COLLEGE**  
**CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION**  
**Precision Machining & Automation Technology Program**  
**Revision Date: August 23, 2021**

**I. CATALOG DESCRIPTION**

Course Number: MACH1225  
Course Title: Materials of Industry  
Prerequisite(s): None  
Catalog Description: Introduction to materials (steel, irons, etc.) used in industry. Properties, uses, specifications, availability, tools steels and heat treatment.  
Credit Hours: 2.0  
Class Hours: 23  
Lab Hours: 23  
Total Contact Hours: 46

**II. COURSE OBJECTIVES:** *Course will:*

- A. Determine how to select and apply the proper material for specific applications.
- B. Identify various material properties and their importance.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:**

- A. Student Learning Outcomes: *Student will be able to:*
  - 1. Identify most common materials used in industry.
  - 2. Identify standard metal specifications, their properties and typical applications.
- B. General Education Learning Outcomes (GELOs)
  - 1. GELO 3: Critical Thinking & Problem Solving  
Outcome 1: Collect, identify, interpret and analyze data.

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

- A. Unit 1: Iron and Steel Production
- B. Unit 2: Properties of Materials
- C. Unit 3: Carbon Steels
- D. Unit 4: Alloy, Specialty & Stainless Steel
- E. Unit 5: Tool Steels
- F. Unit 6: Thermal Processing
- G. Unit 7: Cast Irons and Casting Processes
- H. Unit 8: Nonferrous Metals
- I. Unit 9: Engineered Polymers

**V. INSTRUCTIONAL MATERIALS**

- A. Required Text(s): This course will be taught using handouts and internet resources.
- B. Supplies: 3 Ring Notebook and Calculator

**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. Demonstrations
  - 5. Project boards
  - 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. Notebook (if required)
  2. Quizzes
  3. Tests
  4. Lab grades
  5. Class participation

**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.