

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Manufacturing Engineering Technology Program
Revision Date: August 21, 2023

I. CATALOG DESCRIPTION

Course Number: MFGT1125
Course Title: Materials of Industry
Prerequisite(s): None
Catalog Description: Introduction to materials (steels, irons, etc.) used in industry.
Properties, uses, specifications, availability, heat treatment and tool steel.
Credit Hours: 2
Class Hours: 30
Lab Hours: 0
Total Contact Hours: 30

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce proper material selection and applications.
- B. Identify properties of the materials.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Identify standard metal specifications, their properties and typical applications.
 - 2. Identify and recommend the most common materials used in industry.
- 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. Iron and steel making
- B. Properties and selection of engineering materials
- C. Carbon steels
- D. Alloy and specialty steels
- E. Tool steel types and selection
- F. Thermal processing (heat treatment)
- G. Cast irons and casting processes
- H. Nonferrous metals
- I. Polymers
- J. Resource paper

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Brandt, Warner, *Metallurgy Fundamentals*, Sixth Edition, ISBN 1635638747
- B. Other Resources:
 - 1. Supplemental handouts from instructor
 - 2. Scientific calculator
 - 3. Three-ring notebook

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. Handouts
5. Observations
6. Assigned projects
7. Field trips

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

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 1. Notebook (if required)
 2. Quizzes
 3. Tests
 4. Lab grades

VIII. SPECIFIC COURSE REQUIREMENTS:

- A. Completion of all tests, projects, assignments, and notebook (if required).
- B. Must earn a final grade of 60% (1.0) or higher.
- C. Program shop safety rules will be followed. **Please see the course outline for any additional safety rules established by the instructor.**