

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Precision Machining & Automation Technology Program
Revision Date: August 26, 2019
[Syllabus Statements](#)

I. CATALOG DESCRIPTION

Course Number: MACH2535
Course Title: Mold Theory
Prerequisite(s): MACH1428 and MACH1455
Catalog Description: Fundamental processes and basic construction of plastic molds (compression, transfer, and injection), molds for die casting (pressure molding of nonferrous alloys) and rubber molds.
Credit Hours: 2.0
Class Hours: 23
Lab Hours: 23
Total Contact Hours: 46

II. COURSE OBJECTIVES: *Course will:*

- A. Explore the types of materials used in the molding processes.
- B. Familiarize the student with the vocabulary of components of injection molds, and compression molds, and how a mold is assembled.
- C. Demonstrate how to calculate the length of ejector pins, and vent, runner, gate placement.
- D. Explain the basics of machining and polishing practices to manufacture molds.
- E. Examine the basics of aluminum, zinc die-casting, and rubber molds.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Describe the difference between the two major groups of plastics used in molding plastic parts.
 - 2. Identify the components of a basic 2 plate, 3 plate and hot runner mold base.
 - 3. Calculate the length of return pins and ejector pins for a basic 2 plate mold base.
 - 4. Recognize the difference between various molding techniques.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO 3: Critical Thinking & Problem Solving
Outcome 2: Synthesize information to arrive at reasoned solutions to problems.

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

- A. The student will study the differences in types of plastics used in injection, compression and transfer molding, by means of lecture, homework and example.
- B. The students will learn the mold components of injection, compression and transfer molds by studying the various components observed in class and lab.
- C. Students will do mathematical calculations to determine the length of return pins, ejection pins, and calculate pot, and cavity sizes, from prints provided in class.
- D. The student will study the various molding techniques, and the materials used by the means of lecture, homework, and example.

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Kluz, John, *Moldmaking & Die Cast Dies for Metalworking Trainees*, ISBN:0-910399-25-5

- B.** Other Resources:
 - 1. Notebook 8 ½ x 11
 - 2. 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. Homework
 - 2. Tests
 - 3. 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.