SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Precision Machining & Automation Technology Program
Revision Date: August 24, 2020
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	MACH2532
Course Title:	Mold & Die Making Lab
Prerequisite(s):	MACH1428, MACH1455, MACH2547
Corequisite(s):	MACH2539 & MACH2535
Catalog Description:	Practical experience in construction of metal stamping dies. Two types built, one from the student's own blueprint designed in, MACH2539. Use of form ground and wire EDM (electric discharge machine) construction methods. Construction of plastic injection molds one from the student's prints designed in MACH2539. Construction of two other molds to predesigned specifications. Construction of some components using CNC lathe, CNC mills and CNC EDM (electric discharge machine).
Credit Hours:	6.0
Class Hours:	0
Lab Hours:	270
Total Contact Hours:	270

II. COURSE OBJECTIVES: *Course will:*

- **A.** Examine and practice the production of die components.
- **B.** Demonstrate the construction and running of dies in the punch press.
- **C.** Demonstrate how to preform basic form grinding.
- **D.** Instruct how to write basic program for wire EDM using CAMM software.
- **E.** Demonstrate how to write a basic program on a CNC SINKER EDM.
- **F.** Demonstrate how to write a basic program on an EZ-Trak and ACCURITE milling machine controls.
- **G.** Demonstrate how to write a basic program on a HAAS CNC lathe, HAAS CNC milling machine, including 4 axis milling.
- **H.** Assemble a basic 2 plate mold.
- **I.** Instruct the student how to setup and run an injection molding machine.
- **J.** Instruct how to setup and run Punch Press.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*

1. Operate the Bridgeport EZ-Trak & ACCURITE style CNC controllers to produce die components.
2. Operate the Haas CNC equipment to produce die components.
3. Use CAMM software to produce CNC code for their die components.
4. Write a basic program for the CNC SINKER EDM.
5. Operate conventional equipment to produce die & mold components.
6. Complete the assembly of a die. Assemble a basic 2 plate mold.
7. Initiate the setup and run a punch press. Initiate the setup and run the injection molding machine.
8. Operate a Brown and Sharpe CMM machine.

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. Successful build of two stamping Dies, one Die that the student designed in MACH2539. Successful build of three Plastic Injection Molds, one Mold that the student designed in MACH2539. The student will:

1. Cut all materials listed on project Bill of Materials.
2. Machine all components to print using all necessary equipment that they have been properly trained to operate.
3. Assemble two metal stamping Dies per design specification.
4. Assemble three Plastic Injection Molds per design specification.
5. Set up Molds in Mold Press and operate to demonstrate Mold functionality.
6. Set up Dies in Punch Press, and operate to demonstrate Die functionality.
7. Troubleshoot any final issues with Die and press machine.
8. Present finished projects to instructor and provided a Piece Part to verify the functionality.

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Machinery's Handbook (current edition – see instructor)
B. Other Resources: Machinist hand tools w/tool box

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. Tests
3. Project grades
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.