

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Precision Machining & Automation Technology Program
Revision Date: August 26, 2019

I. CATALOG DESCRIPTION

Course Number: MACH1173
Course Title: Machine Tool Lab I
Prerequisite(s): None
Corequisite(s): MACH1121
Catalog Description: Basic operation of the lathe, milling machine, and grinder. Laboratory experience with hand tools, metrology, metal sawing, drilling and tapping.
Credit Hours: 2.5
Class Hours: 15
Lab Hours: 68
Total Contact Hours: 83

II. COURSE OBJECTIVES: *Course will:*

- A. Demonstrate safe operation of the four basic machine tools.
- B. Review how to read blueprints and lay out their assigned projects.
- C. Familiarize student with the terminology, hand tools, precision tools, and layout tools used in the machining trades.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Safely operate the four basic machine tools.
 - 2. Learn and understand terminology used in manufacturing.
 - 3. Accurately read precision measuring tools.
 - 4. Read blueprints and operate layout tools and equipment.
 - 5. Properly select and use hand tools.
 - 6. Calculate proper RPM for machining operations.
 - 7. Cut single point external threads on a manual lathe.
 - 8. Select proper tap drill size and hand tap internal threads.
 - 9. Offhand grind proper clearance and relief angles in HSS tool bits.
 - 10. Sharpen drill bit points manually with automatic drill point grinder.
 - 11. Layout and drill hole locations to specified print tolerances.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO 5: Analytical, Quantitative, and Scientific Reasoning
Outcome 1: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

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

- A. See course outline for detailed unit of instruction.

V. INSTRUCTIONAL MATERIALS

- A. The course outline lists the current text(s) required for this class. The list is also available in the campus bookstore. The course outline also lists the tools/equipment or other supplies required for this class.

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. Transparencies
 - 5. Demonstrations
 - 6. Project boards
 - 7. Flip charts
 - 8. Handouts
 - 9. Observations
 - 10. Assigned lab projects
 - 11. 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. Attendance/class conduct
 - 6. SCC Standard Grading Scale Policy

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.