

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Precision Machining & Automation Technology Program
Revision Date: August 22, 2022

I. CATALOG DESCRIPTION

Course Number: MACH1100
Course Title: Basic Machine Tool
Prerequisite(s): Current declared Academic Transfer – STS option or currently enrolled at UNL in AG or STS education focus. Note: This class does not meet program requirements for Precision Machining & Automation Technology
Catalog Description: Theory and operation in basic Machine Tool procedures with lathes, milling machines and drill presses.
Credit Hours: 3.0
Class Hours: 30
Lab Hours: 45
Total Contact Hours: 75

II. COURSE OBJECTIVES: *Course will:*

- A. Demonstrate basic operation of the lathe, milling machine, and grinder. The laboratory experience will include metrology, use of basic hand tools, metal sawing, drilling and tapping, milling turning, thread turning, and grinding.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Identify the five basic machine tools; lathe, milling machine, grinders, drill press, and saws.
 - 2. Read blueprints and use the information from the blueprints to lay out their work pieces.
 - 3. Operate the tools in the machine shop in a safe manner.
 - 4. Become familiar with the terminology of the precision measurement tools, layout tools, hand tools, and machine tools used in the machining trades.
- 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. Safety
- B. Precision measuring tools
- C. Layout tools
- D. Hand tools
- E. Tool grinding
- F. Drilling operations
- G. Lathe operations
- H. Milling operations
- I. Grinding operations

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s):
 - 1. Machinery's Handbook (optional)

- 2. Ready Reference Book (optional)
- B. Other Resources:
 - 1. Supplemental handouts supplied by instructor
 - 2. Items below to be provided by the student:
 - a. General note taking supplies
 - b. Digital or dial calipers (See SCC Instructor prior to purchase)
 - c. 6" steel rule
 - d. Safety glasses

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

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.