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

## I. CATALOG DESCRIPTION

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|---|---|
| Course Number: | MACH1428 |
| Course Title: | Precision Machine Lab IV |
| Prerequisite(s): | MACH1324 |
| Corequisite(s): | MACH1455 |
| Catalog Description: | Advanced projects to improve proficiency on the various machine tools. |
| Credit Hours: | 4.5 |
| Class Hours: | 15 |
| Lab Hours: | 158 |
| Total Contact Hours: | 173 |

## II. COURSE OBJECTIVES: *Course will:*

**A.** Enhance proficiency in the use of lathes, milling machines, surface and cylindrical grinders, drill presses, cylindrical squares and various measuring instruments.
**B.** Discuss and practice the processes involved with precision grinding.
**C.** Identify and practice the techniques and processes of heat treating tool steel.

## III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

**A.** Student Learning Outcomes: *Student will be able to:*
- **1.** Produce threads on a lathe.
- **2.** Cylindrically grind diameters to tolerances of +/- .0002.
- **3.** Precision grind a part within required geometric tolerances of squareness and parallism to tolerances of +/- .0002.
- **4.** Heat treat small components for various projects to the proper hardness.

**B.** General Education Learning Outcomes (GELOs)
- **1.** GELO 5: Analytical, Quantitative and Scientific Reasoning
  Outcome 4: Manipulate formulas, data sets, graphs, tables, etc. in a way to produce a meaningful outcome.

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

**A.** Mill
- **1.** Accurate sequences and milling of pre-designed projects
- **2.** Drilling, tapping, reaming, and facing

**B.** Lathe
- **1.** Accurate sequences and turing of pre-designed projects
- **2.** Drilling, tapping, reaming, boring, and threading

**C.** Grinding
- **1.** Surface grinding projects to +/- .0002. tolerance
- **2.** Cylindrical grinding projects to +/- .0002.tolerance

## V. INSTRUCTIONAL MATERIALS

**A.** Prints and Handouts will be supplied by the instructor. No purchased book required.

## 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.** Handouts
- **6.** Observations
- **7.** Assigned lab projects
- **8.** 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.** Class participation

## 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.