

MACHINE TOOL THEORY AND PRACTICE I
COURSE SYLLABUS

Revised 01/04/2012

C - L - CR
2 - 9 - 5

COURSE NUMBER: MTT 111

PREREQUISITE(S): None

CO-REQUISITE(S): EGT 104

COURSE DESCRIPTIONS This course is an introduction to the basic operation of machine shop equipment.

TEXTBOOK(S): Hoffman, Peter. and Hopewell, Eric. and Janes, Brian. and Sharp, Kent. *Precision Machining Technology*
New York: Delmar, 2012.

REFERENCE(S): None

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Clear Safety glasses
3-Piece Machinist Starter Kit:
6" Rule, 1" Micrometer, 6" Dial Caliper

METHOD OF INSTRUCTION: This course will be taught by lecture, small group discussions, video tapes, demonstration methods of instruction and individual projects.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

GRADE CALCULATION METHOD:

Class Exams	=	40%
Lab Projects	=	40%
Participation	=	20%
		<hr/>
		100%

**ATTENDANCE
POLICY:**

Students are responsible for punctual and regular attendance in all classes, laboratories, field trips, and other class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing work missed.

Students are tardy if not in class at the time the class is scheduled to begin. Tardy students are admitted to class at the discretion of the instructor.

A class participation grade consisting of attendance and punctuality will be 20% of the final grade for the class. Each absence will reduce this grade by 5%; two tardies will also equal one absence.

Instructors maintain attendance records.

If you have attended at least one session during the first week of the semester you are responsible for dropping yourself from the class. It is the students' responsibility to withdraw from a course. A student who stops attending class and fails to initiate a withdrawal will remain on the class roster.

If you do not attend a class session during the first week of class you will automatically be dropped by the College.

Students who miss an assignment, test, or exam due to an absence will be responsible for completing all work prior to the next scheduled class period or a zero will be issued for that grade, unless a prior arrangement has been made with the instructor.

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) and instructor-approved plan which outlines the makeup of activities and assignments.
2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with

written notice within the first 10 days of the academic term. Develop an instructor-approved plan which outlines the makeup of activities and assignments.

**ACADEMIC
CONDUCT:**

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to "disruptive behavior."

**CLASS/LAB
PROCEDURES:**

Safety glasses must be worn at all times in the lab. Students are required to do original work on all graded exercises. They are expected to bring all necessary equipment, text, etc. to classes and labs. Labs conducted at scheduled times, and for appropriate credit lab reports are due at specified times. Labs are scheduled/preformed for the experience of the endeavor; therefore attendance is mandatory for a grade.

ACCOMMODATIONS:

Inclement Weather Schedule:

- Check SCC Web Site: www.sccsc.edu
- Tune to **Channel-7** Local T.V. Station (CBS)
- Tune to an FM/AM Local radio station

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services by calling (864) 592-4818, toll-free 1-800-922-3679; via email through the SCC web site at www.sccsc.edu/resources/disabilities; or by visiting the office located in the East Building Room 30-B on the SCC Central campus. Contacting Student Disability Services early in the semester gives the College an opportunity to provide necessary support services and appropriate accommodations.

COURSE
COMPETENCIES &
OBJECTIVES:

Upon satisfactory completion of this course, the student will be able to:

- I. Identify all basic measurement tools.
 1. Describe precision tool room tooling.
 2. Explain six-inch scale and micrometer.
 3. Explain small holes and telescoping gages.
 4. Explain vernier caliper, depth micrometer and adjustment parallel.
 5. Explain vernier height gage, dial indicator and protractor.

- II. Recognize safe and unsafe work practices in a shop.
 1. Recognize safe work practices in a shop.
 2. Recognize unsafe work practices in a shop.

- III. Identify the main basic layout tools and accessories.
 1. Describe the principles of layout.
 2. Identify the basic layout tools and accessories.

- IV. Recognize various hand tools and bench work.
 1. Explain holding, striking and assembling tools.
 2. Identify the various components involved in bench work.

- V. Identify the principles and types of cutting-off metal saws accessories.
 1. Describe different types of cut-off saws and their purposes.
 2. Explain cutting speed.
 3. Explain welding bandsaw blades.

- VI. Identify the principles and types of drill presses and accessories.
 1. Describe different types of drill presses and their purposes.
 2. Describe types of accessories used on a drill press.
 3. Define parts of a twist drill.
 4. Define cutting speeds and feeds.
 5. Describe decimal equivalent and tap drill chart.
 6. Recognize drill press safety.

- VII. Identify the purpose of the main operative parts of the engine lathe.
1. Describe the operations of the engine lathe and explain parts and accessories.
 2. Define cutting tool.
 3. Define cutting speeds, feed and depth of cut.
 4. Recognize lathe setup.
 5. Recognize the purpose of common thread forms and formula.
 6. Dial in a round workplace in a 4-jaw chuck by using a dial indicator.
- VIII. Identify the purpose of the main operative parts of the vertical milling machine.
1. Describe operation of vertical milling machine.
 2. Define milling cutters.
 3. Define cutting speeds and feeds and depth of cut.
 4. Recognize mill safety.
 5. Recognize milling machine setups.
- IX. Perform the following turning procedures.
1. Face and turn round stock to the tolerances required
On each required project.
 2. Machine external threads using the single point Threading method.
 3. Perform drilling and reaming and boring operations
According to print requirements.
- X. Perform the following milling procedures.
1. Square the work piece to size, machine angles, and locate holes.
 2. *Mill* for 90 degree squareness, machine work piece leaving the proper amount of material for roughing and finishing operations.
 3. Perform drilling and reaming and threading operations
According to print requirements.