

MACHINE TOOL THEORY AND PRACTICE I

Revised 12/11/10

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): Kibbe, Richard R. and Meyer, Roland O. and Neely, John E. and White, Warren T. *Machine Tool Practices* 9th Ed. New Jersey: Prentice Hall, 2010.

REFERENCE(S): None

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: 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	=	<u>20%</u>
		100%

**ATTENDANCE
POLICY:**

The student is responsible for punctual and regular attendance in all classes, laboratories, clinical, practical, internships, field trips, and other required 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 missed work if approved for late submission by instructors.

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.

The student is tardy if not in class at the time the class is scheduled to begin and is 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. However, it is the student's responsibility to withdraw from a course. A student enrolling in and attending at least one course session remains enrolled until the student initiates a withdrawal.

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

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 make up 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 with outlines the make up 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: Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 591-3811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at www.sccsc.edu/SDS/; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give 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.

