

COURSE INFORMATION

COURSE PREFIX/NO: **MTT 126**

COURSE TITLE: **Machine Tool Practice III**

LEC HRS/WK: 2.0

LAB HRS/WK: 6.0

CREDIT HRS/SEMESTER: 4.0

DL ATTENDANCE/VA STATEMENT TEXTBOOK INFORMATION

COURSE DESCRIPTION

This course covers the practical application of the principles in Machine Tool Theory III. These principles are included in the machining, heat treating, and grinding of complex metal parts.

COURSE COMPETENCIES

Upon successful completion of this course, the student will perform the following:

SURFACE GRINDER:

- dress a grinding wheel
- select the proper wheel for grinding various materials
- grind using an angle plate
- grind a six sided work place square and parallel

Shaper:

- grind cutting tool
- set and position stroke of ram
- machine flat surface using vise
- machine angler work piece

Cylindrical Grinder:

- dress wheel
- set up work piece between centers
- remove taper from work piece
- hold precision dimension

HEAT TREATMENT:

- select steel
- harden carbon steel
- temper
- test hardness

MINIMAL STANDARDS/PERFORMANCE OBJECTIVES

SURFACE GRINDER:

Following classroom lecture and instructors demonstrations the student will:

- A. Dress a grinding wheel in accordance with the instructor's guidelines.
- B. Select the proper grind wheel for grinding various materials using a do-all-grinding wheel chart with 100% accuracy.
- C. Set up a work piece on an angle plate and grind it in accordance with the instructor's guidelines.
- D. Set up a six-sided work piece square and parallel within .001.

SHAPER:

Following classroom lecture and instructors demonstration the student will:

- A. Grind cutting tool for shaper in accordance with instructor's guidelines.
- B. Set and position stroke of ram with 100% accuracy.
- C. Machine flat surface using a vise according to blueprint specifications.
- D. Machine an angular work piece using a vise according to blueprint specifications.

CYLINDRICAL GRINDER:

Following classroom lecture and instructors demonstration the student will:

- A. Set up work piece between centers in accordance with the instructors guidelines.
- B. Remove taper from work piece with 100% accuracy.
- C. Dress grinding wheel in accordance with instructors guidelines.
- D. Hold precision dimension in accordance with blueprint specifications.

HEAT TREATMENT:

After classroom lecture and shop demonstration the student will be able to:

- A. Select steel to be hardened with 100% accuracy.
- B. Harden carbon steel to proper hardness.
- C. Temper steel to desired hardness.
- D. Test hardness to instructor's specifications.

COURSE REQUIREMENTS

ATTENDANCE

The student should adhere to the attendance policy set forth in the York Technical College Student Handbook. "Students must attend 80% of the hours assigned the class for a semester to receive credit for the course."

In case a student does miss a class he/she is responsible for obtaining the material that was covered during the absence.

If a student is aware that he/she will miss class, then the student should notify the instructor at the earliest possible date.

If a student misses a test because of illness or urgent emergency, then he/she should do the following:

Notify the instructor prior to the class period, or at the earliest possible date. At that time a new date for a make-up test will be scheduled.

Student with unexcused absences during test time will be allowed to take a make-up test at the instructor's discretion.

The student has the burden of making sure that some arrangement was made with the instructor to take a make-up test.

ACADEMIC HONESTY

"York Technical College adheres to the South Carolina TECH Student Code, approved by the State Board for Technical and Comprehensive Education on March 13, 1974 (revised April 25, 1984). Copies of this code are available in the Library and from Student Services. Any student caught cheating or involved in any other academic dishonesty will be given a grade of zero and will be subject to further disciplinary action."

PARTICIPATION IN CLASS DISCUSSION

COMPLETING ASSIGNED READING, LAB DEMONSTRATIONS, AND TESTS

CLASSROOM AND SHOP PROCEDURES

- Roll will be called at the beginning of each class.
- Students are responsible for assigned reading on: Shaper: construction, types, setups and operations.
Cylindrical Grinders: Plain cylindrical grinding.
- Tools and equipment that are used will be returned to their proper place.
- At the end of each class the student will be responsible for cleaning his/her work area. Brushes, brooms, and mops will be provided for this purpose.
- Shoes and safety glasses must be provided by the student.

LAB REQUIREMENTS

During the lab, students may work in pairs or individually. The instructor must see the completed project. A performance test will be given to ascertain if the student can successfully make the project.

EVALUATION STRATEGIES/GRADING

Students will be expected to complete 3 written test, 14 projects, and homework. Minimum score of 60% will be required on each test, project, and homework. Students who score below 70% may request a re-test at the instructor's discretion. Maximum re-test score will be 80%.

The final grade for MTT 126 will be determined as follows:

Shop Projects	70%
Test	20%
Homework/QA	10%

Grading scale is as follows:

A	90-100
B	80-89
C	70-79
D	60-69
F	0-60

CRITERIA FOR LAB PROJECTS

- A = Student completes all projects correctly, without assistance.
- B = Student completes all projects correctly, with minimal assistance from instructor.
- C = Student completes all projects with constant assistance from instructor.
- D = Student does not complete all projects, with or without assistance.
- F = Student does not attempt to complete projects with or without assistance.

REQUIREMENTS FOR SHOP PROJECTS

1. Projects must be machined within specified tolerance.
2. Projects must be neat in appearance.
3. Projects must be free of burrs.

ENTRY LEVEL REQUIREMENTS:

The student should be able to use measuring and bench tools and be able to operate a lathe and drill press.

PREREQUISITES: MTT 124 or vocational training approved by department manager

CO-REQUISITES: None

TOPIC/CONTENT OUTLINE

- A. Surface Grinder
- B. Shaper
- C. Cylindrical Grinder
- D. Heat Treatment

METHODS OF INSTRUCTION

Classroom instruction will include lectures and discussions.

Alternate instructions: If extra help is desired by the student, he/she should:

1. Ask the instructor for additional help in the shop.
2. Review units in the textbook.