

## COURSE INFORMATION

COURSE PREFIX/NO: **MTT 254**  
COURSE TITLE: **CNC Programming I**  
LEC HRS/WK: 3.0  
LAB HRS/WK: 0.0  
CREDIT HRS/SEMESTER: 3.0 [DL ATTENDANCE/VA STATEMENT](#) [TEXTBOOK INFORMATION](#)

### **COURSE DESCRIPTION:**

This course is a study of CNC Programming, including machine language and computer-assisted programming.

### **COURSE COMPETENCIES:**

Upon successful completion of this course, the student should be competent to perform the following tasks:

- operate spindle, tailstock, tool turrent and position axes of the CNC lathe
- preset tool length offset

### **MINIMAL STANDARDS/PERFORMANCE OBJECTIVES:**

- A. Given equipment, instructions, and specifications, the student will operate the spindle, tailstock and tool turrent and position the axes to meet specifications.
- B. Given equipment, instructions, and specifications, the student will preset the tool length offset to meet specifications.
- C. Given guidelines of acceptable work behavior by the instructor, the student will exhibit proper work attitudes at all times as identified in the guidelines. See instructor for specific details.

### **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 last 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 steel and its alloys and heat treating.
- 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 glass 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 two written tests, four lab projects/reports and assigned homework questions. Minimum score of 70% will be required on each test, project, reports and homework. Students who score below 70% may request a retest, at instructor's discretion. Maximum retest score will be 80%.

The grading scale is as follows:

Grade	Points
A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	00 - 59

## **Evaluation Method**

The final grade for MTT 254 will be as follows:

Tests	20%
Projects	50%
Work Attitude	30%

## **ENTRY LEVEL SKILLS:**

Student should have machining skills or permission of instructor.

## **PREREQUISITES:**

None

## **CO-REQUISITES:**

None

## **TOPIC/CONTENT OUTLINE:**

- A. EMCO MAIER PC Turn 50 CNC TURNING CENTER
  - 1. General specifications
  - 2. Operational control features
  
- B. Programming format
  - 1. Tape format
  - 2. Definition within the format
  - 3. EIA character codes
  - 4. ASCII character codes
  
- C. Functions of codes in programming the CNC
  - 1. Word address codes
  - 2. Numeric and special codes
  - 3. "G" codes
  - 4. "M" codes
  - 5. Code description
  
- D. Operational codes
  - 1. Demonstration of "M" code operation
  - 2. Demonstration of "G" code operation
  
- E. Tool nose radius compensation
  - 1. TNR compensation activation
  - 2. TNR compensation de-activation
  - 3. TNR compensation cancellation

## **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.