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<b>Course Prefix/No.:</b>	<b>MET 235</b>
<b>Course Title:</b>	<b>Manufacturing Engineering Principles</b>
<b>Lecture Hours/Week:</b>	<b>2.0</b>
<b>Lab Hours/Week:</b>	<b>0.0</b>
<b>Credit Hours/Week:</b>	<b>2.0</b>

[Distance Learning Attendance/VA Statement](#)  
[Textbook Information](#)

### **COURSE DESCRIPTION**

This course covers an analysis of the management of manufacturing using the tools of work cell design, standards, process planning, inventory control, and quality control. It includes analytical decision making and planning techniques.

### **COURSE COMPETENCIES**

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

- Apply knowledge of manufacturing process and create operations process sheet based on a given set of engineering drawings.
- Given a particular product, student should be able to recommend the best type of shop floor layout.
- Student should be able to calculate the minimum process time for a given product using critical path method and analytical decision making.
- Student should be introduced to basics of Numerically Controlled (NC) programs.
- Student should be able to use and apply NC Programming/Auto CAD programming knowledge to Laser Machining.
- Student is introduced to the basics of quality control using statistical process control methods.

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

- On a closed book examination, student will be able to create a simulated operator's process sheet from a given set of blue prints.
- At the conclusion of the course, student should be able to determine the minimum throughput time for a particular product using Critical Path Method (CPM).
- Given an engineering drawing, student should be able to write NC program.
- Given a particular operation process, student should be able to use the basic statistical approach to quality control, (e.g. X and R charts).
- Using simple CAD drawing and knowledge of NC programming, student should be able to process a simple part on the laser machine.

### **COURSE REQUIREMENTS**

Students are responsible for attaining competencies through completion of the following requirements:

## **Attendance**

Students will be bound by the policies stated in the York Technical College Student Handbook. Students must attend 90% of the hours assigned the class for a semester to receive credit for the course. In case a student does miss a class, the student is responsible for obtaining the material that was covered during the absence. If a student is aware that a class will be missed, then the student should notify the instructor at the earliest possible date. If a student misses a test because of illness or urgent emergency, it is the responsibility of the student:

- 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 can be scheduled.
- Students with unexcused absences during tests will be allowed to take a make-up test at the discretion of the instructor.
- The student has the burden to be sure that some arrangement was made with the instructor for taking 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.”

## **METHOD OF INSTRUCTION**

Two hours of instruction are provided each week. Most of that time is devoted to lecture, demonstration and chalkboard problem solving. About one fourth of class time is reserved for coaching as students solve problems and for quizzes and exams.

## **EVALUATION CRITERIA/GRADING**

The grading scale follows:

### **Grade Points**

A 90-100  
B 80-89  
C 70-79  
D 60-69  
F 0 –59

## **EVALUATION CRITERIA/GRADING**

Evaluation Method	Percentage
Quizzes (minimum of 4)	60%
Homework	20%
Project	20%
Total	100%

**ENTRY LEVEL SKILLS:** Permission of instructor

**PREREQUISITES:** EGR 175

**CO REQUISITES:** NONE

**Disabilities Statement:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.

## **TOPIC/CONTENT OUTLINE**

- A. Operator's Process Sheet/ Operation Sheet
- B. Statistical Process Control
- C. Work Cell Design
- D. Plant Layout
- E. Just-in-Time Manufacturing (JIT)
- F. Critical Path Method
- G. Numerically Controlled (NC) Programming
- H. Laser Machining

NOTE: All of the above subjects will be covered if time permits. If class time runs short, omissions will be made at the discretion of the instructor.