

**NORTHEASTERN TECHNICAL COLLEGE  
COURSE OUTLINE**

<b>COURSE:</b>	<b>PREFIX NO.</b>	<b>EFFECTIVE DATE</b>	<b>NEXT REVIEW DATE</b>		
MTT	253	FALL 2010	FALL 2012		
<b>TITLE:</b>	<b>CREDITS</b>	<b>CONTACTS</b>			
		<b>CLASS</b>	<b>- LAB</b>	<b>- TOTAL</b>	
CNC PROGRAMMING AND OPERATION	3	2	3	3	

**PREREQUISITES:** MTT diploma or instructor permission

**DESCRIPTION:**

LEVEL I: This course is a study of the planning, programming, selecting tooling, determining speeds and feeds, setting up, operating and testing of CNC programs on CNC machines

LEVEL II: In this course the student will create part shapes, part programs, files and plot using computer aided machining; set up CNC machines; load programs; run programs; make machine adjustments; and edit programs.

**TEXTBOOK(S) OR ALTERNATIVE:** Mastercam X4 Mill Training Tutorials  
Textbook Required

**MATERIALS (specifying those to be purchased by student):**

Approved Safety Glasses

**COLLATERAL READING:** The Machinist Ready Reference

Machinery's Handbook 24th Edition

Machine Manuals

Mastercam Manuals

**CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):**

**Attendance:** The student is required by the instructor to attend 90% of the classes. Excessive absences will result in the student being dropped from the course.

**Tardies:** Three tardies constitute one absence.

**Testing:** Tests and pop quizzes will be given at instructor's discretion.

**Academic Dishonesty:** Students are expected to do their own work. Please refer to the NETC Student Code and Grievance Procedure for a definition of academic dishonesty and an outline of the disciplinary action that may result therefrom.

**Student ID:** It is mandatory that every student wear his or her student ID at all times. Instructors are required to dismiss students without ID from class. The student may get his/her ID and return to class before the midpoint of the class. If the student cannot get an ID and return to class by the midpoint, the instructor will record the absence.

**Disabilities Statement:** Students with disabilities are encouraged to contact the Vice President for Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Vice President for Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See *College Catalog*)

**RESOURCES (A-V, persons, tools/equipment):**

Audio-visual materials  
Machine programming manuals

**COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.**

The student will perform the sequence of operations required for each project based on the availability of machines.

**OBJECTIVES/STUDENT LEARNING OUTCOMES OF COURSE:**

1. The student should be able to write complex programs to include but not limited to: pocket milling, threading, drilling, tapping, rotating, etc.
2. The student should be able to make machine setups on CNC equipment.
3. The student should be able to make tool offset adjustments.
4. The student should be able to edit programs.
5. The student should be able to create part geometry, toolpaths, and post files using MasterCam.

**INSTRUCTIONAL METHODS TO COMPLETE STUDENT OBJECTIVES:**

Demonstrations on computers and machines

**EVALUATIVE METHODS TO APPRAISE STUDENT OBJECTIVES:**

Tests  
Inspection of parts and programs

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Observation of care of equipment  
Observation of work habits

Grading: The student's grades will be determined by the following:

Quantity of tutorials - 60%  
Project - 20%  
Lab work habits and Care  
of machines, tools, etc. - 20%

Lab clean-up and machine maintenance/repair will be required on a class to class basis.

Students must participate in final shop clean-up at the end of semester to receive final grade.

**GRADING:**

100 - 93 = A  
92 - 85 = B  
84 - 77 = C  
76 - 69 = D  
68 - BELOW= F

**PARTICIPATION:** Evaluation of your participation will be based on the following:

- (100 - 80) Comes to class prepared; voluntarily and enthusiastically participates in classroom activities, presentations, and clean-up. Stimulates creativity and demonstrates excellent completion of in-class assignments. Must demonstrate respect to instructor and fellow students.
- ( 80 - 60) Comes to class prepared; usually participates in classroom activities, presentations, and clean-up. Demonstrates satisfactory completion of in-class assignments. Must have above average attendance, a positive attitude, and demonstrate respect for instructor and fellow students.
- ( 60 - 40) Usually comes to class prepared; occasionally participates in classroom activities, presentations, and clean-up. Completes most in-class assignments. Has average attendance, a positive attitude, and demonstrates respect for instructor and fellow

students.

- ( 40 - 20) Occasionally comes to class prepared; reluctantly participates in class activities. Occasionally completes in-class assignments. Has below average attendance, uncooperative attitude, and demonstrates lack of respect for instructor and fellow students.
  
- ( 20 - 0) Seldom comes to class prepared; uncooperative and disruptive to class discussions or other learning activities. Has poor attendance and shows disrespect for instructor and fellow students. Avoids class clean-up and/or has a negative attitude.