

El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	<u>Machining Technology</u>
COURSE RUBRIC AND NUMBER	<u>INMT 2334</u>
COURSE TITLE	<u>Numerical Control/ Computerized Numerical Control Programming (NC/CNC)</u>
COURSE CREDIT HOURS	<u> 3 2 : 4</u> Credits Lec Lab

I. Catalog Description

A study of the principles and concepts of numerical control through computer applications, specifically in the area of programming for the control of machine tools in computer integrated manufacturing (CIM).
(2:4). Lab fee.

II. Course Objectives

Upon satisfactory completion of this course, the student will be able to:

- A. Safety
 - 1. Perform log-out/tag-out.
 - 2. Utilize proper personal safety attire.
 - 3. Organize work area.

- B. Technical Manuals
 - Interpret technical manuals in order to identify parts and general functions of CNC Machine.

- C. CNC Machine and Equipment
 - 1. Identify jigs and fixtures.
 - 2. Employ milling techniques.
 - 3. Perform turning techniques.
 - 4. Develop code.

- D. CNC Machining Performance
 - 1. Organize work area.
 - 2. Lay out tooling setup.
 - 3. Indicate tool layout.
 - 4. Load parts program into CNC machine.
 - 5. Perform maintenance checks.

- E. Create a program in order to create a part in a CNC Machine
 - 1. Draw part in a CAD drawing program.
 - 2. Utilize CAM program to translate CAD drawing into G-code.

- F. Create Part on the CNC Machine
 - 1. Indicate work piece and workable.

2. Calculate feeds and speeds.
 3. Identify x, y, z, u, and v coordinate system.
 4. Perform dry run operations.
 5. Execute full run sequence to fabricate parts of automated equipment.
- G. Quality Practices and Measurement
1. Evaluate part for accuracy.
 2. Inspect materials and product/process at all stages to ensure they meet specifications.
 3. Document the results of quality test.
 4. Communicate quality issues.
 5. Take corrective actions to restore or maintain quality.
 6. Utilize common measurement systems and precision measurement tools.

III. THECB Learning Outcomes (WECM)

1. Identify the basic types of numerical-controlled machines.
2. Demonstrate an understanding of the fundamental steps of planning for the use of numerical control.
3. Describe axis relationships and tape readout characteristics.
4. Write an exercise in specific programming for an NC/CNC machine.
5. Machine a model of the program.

IV. Evaluation

Students must demonstrate the knowledge and skills stated in the objectives in order to complete the course. Exams, quizzes, and lab assignments will be determined by the instructor.

The final grade report will be based on the percentage of the total points earned.

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

Students should be able to compute their grade average anytime during the course. Missed assignments and make-up tests will be given at the discretion of the instructor.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to

see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.