

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Machining Technology</u>
COURSE RUBRIC AND NUMBER	<u>MCHN 2171</u>
COURSE TITLE	<u>Industrial Machining Lab</u>
COURSE CREDIT HOURS	<u>1 0 :<!-- 3</b--></u> Credits Lec Lab

I. Catalog Description

Fabricate a mechanical device using basic machine tools and equipment such as the lathe, milling machine, drill press, power saw, bench grinder and welder. Machine terminology, safety, theory, math part layout and bench work using common measuring tools is included, as well as Computer Numerical Control (CNC) operations and applications in turning, milling and cutting. Metal forming techniques such as sawing, shearing and bending are demonstrated. Joining processes and techniques, which include taping, press fitting, location of hole centers and surfaces, and welding will be presented by shop demonstration. Discusses the use of robotics in manufacturing settings. **(0:3). Lab Fee.**

II. Course Objectives

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

1. Design a solid model with CAD/CAM software.
2. Develop a solid model with the proto type rapid machine.
3. Concepts of metal forming to include sawing, shearing, and bending.
4. Cutting tools and tool-material interactions.
5. Lathe operations.
6. Milling machine operations.
7. CNC applications in turning, milling, and cutting.
8. Welding techniques.
9. Sawing, shearing, bending, and other forming techniques.
10. Lab demonstrations and training on use of basic machine shop equipment.

Class/Laboratory Schedule:

The students taking this course will meet once a week for a minimum of 3 hours. This will include classroom and laboratory/shop work.

III. THECB Learning Outcomes (WECM)

Learning outcomes/objectives are determined by local occupational need and business and industry trends.

IV. Evaluation

Students will be evaluated based on:

Lab Assignment: 70%

Participation: 30%

Lab Assignments will be graded based on a scale of 100. Participation will be graded through instructor observation of student performance based on a scale of 100.

Final grades will follow the standard grading scale:

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

Students are expected to attend class regularly, failure to do so will result in not completing course project.

Instructional Methodology

The goal of this course is to provide students with hands-on experience in traditional fabrication processes in industry. The goal is achieved by fabricating a nut-cracking device. It is very important to be aware of the fact that we will be dealing with machines that, if not used properly, may harm you. For that reason, safety cannot be over stressed.

Safety precautions:

- a) Use protective equipment.
- b) Use proper clothing.
 - 1) No rings watches, or jewelry
 - 2) No loose clothing
 - 3) Short sleeve shirts or role up long sleeves
 - 4) Closed foot ware (i.e. no sandals)
- c) Be alert to what you do
 - 1) No hangovers
 - 2) Good night's sleep
 - 3) No distractions (leave boy or girlfriend at home)
- d) Machines are to be utilized only when instructor of record is present.
- e) Clean machine and workplace after use
- f) Proper use of tools
- g) Follow procedures
- h) Do not use machines as work bench. (be organized)
- i) Behave yourself!

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.