

El Paso Community College

Syllabus

Part II

Official Course Description

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| SUBJECT AREA | <u>Industrial Manufacturing</u> |
| COURSE RUBRIC AND NUMBER | <u>INMT 1305</u> |
| COURSE TITLE | <u>Introduction to Industrial Maintenance</u> |
| COURSE CREDIT HOURS | <u>3 2 :</u> Credits Lec Lab |

I. Catalog Description

Basic mechanical skills and repair techniques common to most fields of industrial maintenance. Topics include precision measuring instruments and general safety rules common in industry, including lock-out/tag-out. **(2:4). Lab fee.**

II. Course Objectives

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

- A. Safety
 - 1. Demonstrate safety principles in the workplace, including lock-out/tag-out, and hazardous materials handling.
 - 2. Work in a safe and productive manufacturing workplace.
 - 3. Perform safety and environmental assessments.
 - 4. Perform emergency drills and participate in emergency teams.
 - 5. Identify unsafe conditions and take corrective actions.
 - 6. Participate in safety training and equipment safety training.
 - 7. Suggest processes and procedures that support safety of work environment.
 - 8. Fulfill safety and health requirements for maintenance, installation and repair.
 - 9. Monitor safe equipment and operator performance.

- B. General Knowledge
 - 1. Utilize the appropriate tools needed according to the task given such as hand tools, measuring devices, and power tools.
 - 2. Identify fundamentals of blueprint reading.

- C. Mechanical Knowledge
 - 1. Identify mechanical power transmission parts such as belts, chains, gears, and gearboxes.
 - 2. Describe and apply lubrication methods.
 - 3. Identify and troubleshoot hydraulic pumps and air compressors.
 - 4. Describe the fundamentals of fluid power and piping systems.

D. Electrical Knowledge

1. Describe electrical fundamentals such as Ohm's law, power, and engineering notation.
2. Utilize test equipment, including digital multimeter, clamp-on ammeter, megohmmeter, and oscilloscope.
3. Identify basic resistive electrical circuits in series, parallel, and series-parallel.
4. Examine wiring methods such as conductor selection and color code.
5. Examine transformers.
6. Identify electrical machinery, including DC generators and DC motors, alternators, and three-phase and single-phase motors.
7. Identify input/output devices such as pushbuttons, switches, relays, and motor starters.
8. Identify industrial electronic devices such as variable speed drives and programmable logic controllers.

E. Welding Knowledge

1. Examine different welding processes commonly used in the maintenance field such as tig, mig, stick, etc.

F. Maintenance Awareness

1. Develop and perform preventive maintenance and routine repair, including monitor indicators to ensure correct operations, and perform all housekeeping to maintain product schedule.
2. Recognize potential maintenance issues with basic production system, including knowledge of when to inform maintenance personnel of problems with the different systems such as electrical, hydraulics, pneumatics, automation, etc.
3. Perform mechanical PM on such things as bearings, seals, belts, chains, gearboxes, and couplings.
4. Perform electrical PM, including general requirements and inspections records.

G. Green Production

1. Train workers in environmental issues.
2. Implement and promote environmental programs, projects, policies or procedures.
3. Conduct environmental incident and hazard investigations.
4. Conduct preventive environmental inspection.

III. THECB Learning Outcomes (WECM)

Upon successful completion of this course, students will:

1. Identify various types of fasteners common to industrial maintenance.
2. Utilize various hand and power tools.
3. Utilize precision measuring instruments.
4. Demonstrate proper lock-out/tag-out procedures.

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.

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| 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.