

El Paso Community College
Syllabus
Part II
Official Course Description

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| SUBJECT AREA | <u>Advanced Technology Industrial Manufacturing</u> |
| COURSE RUBRIC AND NUMBER | <u>ELMT 2433</u> |
| COURSE TITLE | <u>Industrial Electronics</u> |
| COURSE CREDIT HOURS | <u>4 3 : 3</u> Credits Lec Lab |

I. Catalog Description

Studies devices, circuits, and systems primarily used in automated manufacturing and/or process control including computer controls and interfacing between mechanical, electrical, electronic, and computer equipment. Includes presentation of programming schemes. **Prerequisite: CETT1407. (3:3). Lab fee.**

II. Course Objectives

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

- A. Calculate voltage gain of the noninverting and inverting operational amplifier.
- B. Build an open loop and closed loop process control system.
- C. Use timer circuits in industrial control applications.
- D. Explain the operation of a given ladder diagram.
- E. Identify the symbols for a process control ladder diagram.
- F. Explain the application of input devices
- G. Distinguish among various industrial interface circuits.
- H. Interface computers with remote control circuitry.
- I. Troubleshoot feedback systems (thermal, speed, frequency).

III. THECB Learning Outcomes (WECM)

1. Describe how electronic input and output circuits are used to control automated manufacturing and/or process systems.
2. Identify basic elements used for input, output, timing, and control.
3. Define how programmable electronic systems use input data to alter output responses; troubleshoot a representative system.
4. Demonstrate how system operation can be altered with software programming.

IV. Evaluation

Objectives will be evaluated according to the observed student's class performance in accordance with industrial requirements and appropriate section or sections of referenced materials. The number of examinations and the type of laboratory exercises will be determined by each individual instructor.

The following evaluation measures are guidelines. The weight of the knowledge tests and laboratory performance is left to the discretion of each instructor.

Knowledge Tests: 60% of total grade value
Lab Performance: 40% of total grade value

Grading Scale:

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

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.