Course Information Form (CIF)

Course Code: ELT 171

Course Title: Analog Control Systems

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 15.0303
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 2-2-3
Credit Hour Distribution:

Lecture: 2	Lab: 2	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Characteristics and application of electronic components and amplifiers. Component identification and testing, circuit construction, operation, and troubleshooting of analog control systems.

General Course Objectives

- Identify and describe the operation and application of electronic components and amplifiers.
- Construct, troubleshoot, and verify operation of analog systems.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in ELT 150

Methods of Evaluation

Students will be given a minimum of 6 quizzes, 1 mid-term exam, 1 final exam, 10 labs, and 1 in-class project and/or 2-5 homework assignments.

Instructional Materials and Additional Supplies

Electronics for Electricians, Herman. 9781305505995
Websites such as:

- https://www.allaboutcircuits.com
- https://www.electronics-tutorials.ws/
- www.kester.com/sidemenu/technicalsupport/alloyproperties/tabid/177/default.aspx
- http://www.elexp.com/t_solder.htm
- http://www.circuitrework.com/guides/7-1-1.shtml

Safety glasses

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Discrete Components (capacitors, inductors, diodes, transistors, thyristors)	1. Recognize and describe electronic components in terms of inputs and outputs. 2. Quantify time delays and phase shifts.	8	8	0
Direct Current (DC-to-DC) Converters and Regulators	1. Recognize and describe system blocks in terms of inputs and outputs. 2. Quantify time delays. 3. Draw block diagram showing the expected subsystem inputs and outputs within a system. 4. Measure subsystem inputs and outputs within a system. 5. Restore system function based on above troubleshooting information.	6	6	0
Amplifiers, Including Integrating and Multiplying	1. Recognize and describe system blocks in terms of inputs and outputs. 2. Quantify time delays and phase shifts. 3. Draw block diagram showing the expected subsystem inputs and outputs within a system. 4. Measure subsystem inputs and outputs within a system. 5. Restore system function based on above troubleshooting information.	8	8	0
Active Filters	1. Recognize and describe system blocks in terms of inputs and outputs. 2. Quantify time delays and phase shifts. 3. Draw block diagram showing the expected subsystem inputs and outputs within a system. 4. Measure subsystem inputs and outputs within a system. 5. Restore system function based on above troubleshooting information.	4	4	0
Oscillators	1. Recognize and describe system blocks in terms of inputs and outputs. 2. Quantify time delays and phase shifts. 3. Draw block diagram showing the expected subsystem inputs and outputs within a system. 4. Measure subsystem inputs and outputs within a system. 5. Restore system function based on above troubleshooting information.	4	4	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0