Course Information Form (CIF)

Course Code: ELT 292

Course Title: Process Control

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0105
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

Process control concepts using advanced capabilities of PLC systems: Interfacing devices, process controllers, pressure, temperature, flow and level measurement, A/D, D/A, PID control, and Human Machine Interface (HMI) using RSView32 to monitor and control machines and processes.

General Course Objectives

Students will be able to identify and describe different interface circuits, process control methods and measurement devices; advanced program techniques using data and math instructions, A/D, D/A, and PID control instructions; Human Machine Interface (HMI) using RSView32 to monitor and control machines and processes.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in ELT 231

Methods of Evaluation

Minimum of 6 quizzes, midterm, and final exam. Minimum of 10 labs. In-class and/or homework assignments recommended.

Instructional Materials and Additional Supplies

Industrial Automated Systems: Instrumentation and Motion Control, Bartelt. 9781435488885

Course Content

General Learning Outcomes (GLOs)

- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Introduction to Control Systems; PLC Selection, Installation, and Configuration	1. Identify and describe different types of interface devices for PLC I/O and discuss compatibility with field devices.	2	2	0
Controller Types and Applications	1. Identify and describe different control strategies for batch and continuous process operations.	2	2	0
Pressure Sensors and Components	1. Identify and describe different types of devices to measure pressure. 2. Connect sensors to PLC and create a program to measure pressure.	2	2	0
Temperature Sensors and Components	1. Identify and describe different types of devices to measure temperature. 2. Connect sensors to PLC and create a program to measure temperature.	2	2	0
Flow Sensors and Components	1. Identify and describe different types of devices to measure flow. Compare and contrast the different techniques.	2	2	0
Level Sensors and Components	1. Identify and describe different types of devices to measure level. 2. Connect sensors to PLC and create a program to measure level.	2	2	0
Process Control with the PLC	1. Describe proportional, integral, and derivative control. 2. Program and test a PID control loop.	4	4	0
Introduction to Studio 5000, Factory Talk ME, and Configuring RSLinx	1. Describe the features and benefits of using an HMI to monitor and control machines and processes. 2. Install and configure software.	2	2	0
Starting and Configuring a Project; Creating Touch Control Objects	1. Create and configure new projects, open and modify existing projects, and create touch control objects.	2	2	0
Creating Graphics Displays Controlling Valve On/Off Control (Toggle Control)	1. Create graphics displays, open and modify existing projects, and create toggle control objects.	2	2	0
Monitoring a Digital Output (Color Control) Using the Visibility Option	1. Create objects that monitor digital outputs using color control. 2. Create objects that change visibility depending on state.	2	2	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Displaying a Warning Message/Alarm; Monitoring an Analog Device	1. Create warning messages and alarms. 2. Create objects that monitor an analog device.	2	2	0
Animating an Analog Device (Fill Control); Rotating an Analog Device	1. Create animated objects for displaying analog values that fill, move, or rotate.	2	2	0
Displaying RPM (Numeric Display Control)	1. Create a numeric display object.	2	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0