Course Information Form (CIF)

Course Code: ELT 295

Course Title: Automation and Motion Control

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

Servo motor control using CompactLogix, Kinetix® servo drives, and PanelView 800 HMI. Connect and configure input/output (I/O), data communications, servo drive, and HMI. Create motion control programs. Interfacing and programming touchscreen terminals.

General Course Objectives

- Students will be able to install, configure, and program an Allen-Bradley Kinetix motion control system.
- Configure communications, programmable logic controller (PLC), servo drive, and program specific motion control of servo motor.
- Configuration and programming of touchscreen to control motion control system.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in ELT 292
Approval of instructor or department chair

Methods of Evaluation

Students will be given a minimum of 6 quizzes, 1 midterm exam, 1 final exam, and 8 labs. In-class and/or homework assignments are also recommended.

Instructional Materials and Additional Supplies

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

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 Components; Selection, Installation, and Configuration	1. Identify PLC components. 2. Install and configure processor, I/O cards, servo drive, motor, and human-machine interface (HMI).	4	4	0
Data Communications	1. Identify data communication options and network requirements. 2. Install and verify operation.	4	4	0
PLC Programming Using CompactLogix to Control the Servo Drive	1. Create and test PLC programs that control the servo drive to perform specific motion control tasks.	16	16	0
Programming the HMI Touchscreen	1. Create and configure HMI controls for user inputs to the PLC. 2. Display machine status. 3. Register information to users.	6	6	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0