ELC-128 Introduction to PLC

COURSE DESCRIPTION:

Prerequisites: None

Corequisites: None

This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to understand basic PLC systems and create simple programs. Course Hours Per Week: Class, 2. Lab, 3. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completing requirements for this course, the student will be able to:

1. Identify and demonstrate safe practices and procedures with tools, materials and industry accepted test equipment covered in the course.
2. List and describe the hardware components used in PLC systems.
3. Utilize the binary, octal, decimal, and hexadecimal numbering systems as applied to PLCs.
4. Demonstrate and describe the use of various PLC instruction sets.
5. Utilize PLC counters and counters.
6. Create PLC programs using simulated hardware.
7. Apply appropriate troubleshooting methods to PLCs.

OUTLINE OF INSTRUCTION:

I. Introduction to programmable Controllers
    A. Overview
    B. Inputs/Outputs
    C. Installation
    D. Rack addressing
    E. Data files

II. Programming Instructions
    A. Binary controls
    B. Relays
    C. Timers
    D. Counters
    E. Registers

III. Programming software
    A. Start-up
    B. Memory
    C. Numbering System
    D. Debugging

IV. Configuring the PLC
    A. Processor configuration
    B. I/O configuration

V.   PLC communications
      A.   Online/Offline communications
      B.   Computer interfacing

VI.   Installation of programmable controllers
      A.   Enclosures
      B.   Environmental considerations

REQUIRED TEXTBOOK AND MATERIAL:

The textbook and other instructional material will be determined by the instructor.