

TRAINING SYLLABUS

Course Number: 12.0.0
CEU Assignment: 2.0
Course Title: Introduction to Digital Logic Circuits and Programmable Logic Controllers

Course Description

This training describes electronic circuits and gates used in digital control circuits and the truth tables for each. Additionally we introduce the trainee to the application of PLCs in industrial process control, as well as the binary numbering system used in computer-based control. We covers components of PLCs, including power supplies, I/O modules, processor modules, types of communication bus, and memory.

Fee / Class Size: \$1,350.00 per trainee, 4 trainee minimum - 12 trainee maximum*

Prerequisites: AC/DC Theory

Course Duration: 3 days at 8 hours

Contact Information

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Learning Objectives

- Identify the different gates and circuits in digital logic
- Describe the truth tables and timing diagrams for various digital gates
- Describe the operation of different digital flip-flops, shift registers, and counters
- Describe the function and purpose of a programmable logic controller (PLC)
- Compare hardwired and PLC systems
- Describe the purpose of the various power supplies used within a PLC
- Explain the general function of an input/output (I/O) module
- Explain the power supply and ground connections to I/O modules
- State the function of the PLC processor module
- Explain the interrelations between the various microprocessor components
- State the characteristics of various types of memory
- Describe the characteristics and features of a PLC processor module
- Explain the purpose of PLC software and firmware
- Describe the features and the differences between PLC programming languages
- Describe the features of relay ladder logic instruction categories
- Explain the principles used to correlate PLC hardware components to software instructions

Performance Tasks

- Given a PLC diagram, identify the basic components in a PLC system
- Given a ladder logic diagram, point out commonly used symbols and their meaning

Required Student Materials: PowerPoint (provided)

Objective Measurement: 40 Question Written Test / Practical

Grading Policy: Min. 70% to pass / PASS-FAIL

*Assumes classes are held in Lewisville, TX. This course can only be taught at the National Training Center.