

Corporate Office  
7042 Fairfield Business Dr.  
Fairfield, OH 45014-5480  
(513) 874-3225  
(513) 874-3229 Fax



## Level 1 PLC Fundamentals

**Course Description:** This course covers the fundamentals and principles of Industrial Programmable Logic Controller (PLC). The focus is on how PLC's work and gives practical information on maintaining PLC systems. Students will examine the control of systems with a PLC simulator and laptops. Emphasis will be on using the PLC as a diagnostic tool for troubleshooting the processing system.

**Prerequisites:** None

**Textbook:** Programmable Logic Controllers

### Learning Objectives:

- List the primary functions of a programmable logic controller (PLC)
- Explain the benefits of using PLC's instead of hard wired relays
- Identify the major components of a PLC and explain their functions
- Describe the function of each of the three types of memory used in a PLC
- Identify different types of programming terminals
- Define such terms as program, address, instruction, program rung, and ladder logic
- Recognize the different types of input and output modules
- Explain the basic function of a scan cycle
- Differentiate Boolean AND, OR, NOT functions for multiple devices on a rung
- Identify commonly used numbering systems
- Define the symbols associated with ladder logic
- Explain the relationship between addresses used for field wiring and programming instructions
- Describe a typical I/O address
- Explain why fusing, grounding, and shielding are important when wiring I/O field devices
- Describe how programming instructions interact with the PLC's memory
- Demonstrate how to wire input and output field devices to a SLC 500 and similar controllers
- Identify how each rung performs the logic functions necessary to determine whether the rung is true or false
- Know the importance of maintaining up to date documentation
- List the basic steps to troubleshooting PLC's
- Identify the diagnostic and I/O status lights and explain their condition