



## Allen-Bradley ControlLogix Maintenance & Troubleshooting Module 241

This course provides students with a fundamental understanding of the installation, configuration, and layout of the Allen-Bradley Logix (ControlLogix / Studio-5000 Logix Designer) family of PLCs. Troubleshooting and maintenance procedures are covered for the Allen-Bradley ControlLogix, FlexLogix, and CompactLogix programmable controllers and their associated input/output (I/O) systems. In addition, programming concepts covering contact, coil, timer, counter, and compare instructions are introduced. Issues and concepts related to migrating from the PLC-5 to the SLC-500 based control systems are also discussed.

### Objectives

- Understand the major functional components of the Allen-Bradley Logix (ControlLogix) programmable logic control system as it relates to your facility's installation.
- Discuss design considerations for system architecture, processor selection, input/output module type selection, power supply selection, and communication system layout.
- Cover rules for chassis, processor, adapter, power supply, and input/output module placement.
- Consider issues relevant when replacing existing controller, power supplies, chassis, and modules.
- Determine the meaning of LED indicator lights, jumpers, and dip or rotary switch positions on processors, modules, power supplies, and chassis.
- Discuss battery purpose, replacement procedures, and environmental concerns for disposal.
- Know the differences in capabilities of local, extended local, universal remote, DeviceNet, ControlNet, and Ethernet I/O systems.
- Discuss field devices and signal types and levels pertaining to I/O module selection.
- Understand the relationship between field devices, I/O modules, and I/O addressing.
- Cover configuration and impact of I/O update options related to change-of-state, requested packet interval, and real-time sampling.
- Become familiar with the memory layout and configuration of the Logix (ControlLogix) processor, tags, data types, tasks, programs, and routines.
- Design, build, test, and troubleshoot ladder logic control circuits involving contact, coil, timer, counter, and compare instructions.
- Use the programming software as a diagnostic and troubleshooting tool.
- Know the difference between online and offline programming.
- Document and organize your programs for easy future reference.
- Upload and download existing programs to and from the personal computer and a Logix (ControlLogix) processor.
- Use the programming software as a diagnostic and troubleshooting tool.
- Isolate hardware and software problems from field device problems.
- Use system diagnostics to identify and pinpoint faults in the system.
- Develop a thorough understanding of and the safety issues related to Forcing in the Logix (ControlLogix) family of PLCs.
- Is the circuit really off? Discuss appropriate safety issues.