



## Allen-Bradley SLC-500 Maintenance & Troubleshooting Module: 211

Maintaining, troubleshooting, and programming a programmable control system requires a thorough understanding of the system hardware and software. This course provides students with a fundamental understanding of the installation, configuration, layout, troubleshooting procedures, and maintenance procedures for the Allen-Bradley SLC-500 programmable controller and input/output systems. In addition, programming concepts for contact, coil, timer, and counter instructions are introduced. *This course is conducted using Rockwell RSLogix-500 or Advanced Interface (AI) software, depending on student preference.*

### Objectives

- Understand the major functional components of the Allen-Bradley SLC-500 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.
- Study the capabilities and differences among the various SLC-500 processor modules.
- 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 and dip switch positions on processors, modules, power supplies, and chassis.
- Discuss battery purpose, replacement procedures, and environmental considerations for disposal.
- Know the differences in capabilities of local, extended local, remote, and ControlNet 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.
- Examine the differences and learn the concepts of 2, 1, and ½ slot addressing.
- Become familiar with the memory layout and configuration of the SLC-500 processor, data table, memory map, program files, I/O image table, edit buffer, etc.
- Design, build, and test control circuits involving contact, coil, timer, counter, and compare instructions.
- 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 controller.
- 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 SLC-500.
- Is the circuit really off? Discuss appropriate safety issues.