Allen-Bradley ControlLogix
Advanced Programming & Troubleshooting
Module: 244

To fully understand and troubleshoot a PLC based control system, you must have a thorough understanding of all aspects of the controller. The Advanced course completes the instruction set of the ControlLogix controller by delving into the bit manipulation, process control, and program control instructions. Placing the functionality of these instructions at your command will allow you to create functional, efficient programs.

The Advanced course further develops the skills necessary to trace the flow of word information into, through, and out of logic programs using the Word and Array manipulation instructions. This additional programming knowledge provides the ability to comprehend and troubleshoot detailed control circuits. In addition, students explore the system status and diagnostic data access instructions (SSV, GSV) to help diagnose and solve in-plant control problems more quickly.

The course length is four days. Rockwell Software's RSLogix-5000 / Studio-5000 Logix Designer programming software is used to conduct this course. Allen-Bradley Logix (ControlLogix) Intermediate II Programming & Troubleshooting or instructor approval is a prerequisite.

Objectives

- Briefly discuss the major functional components of the Allen-Bradley ControlLogix programmable control system.
- Review of the instructions presented in the Maintenance & Troubleshooting and Intermediate courses.
- Explore and test the functionality of the bit modify and move instructions as they apply to your system.
- Discuss the program and process control functions and learn how to implement them into your control system.
- Apply these instructions to create and test your own programs in extensive hands-on lab sessions designed to simulate a logical approach to problem solving.
- Further explore and test the functionality of the Array Manipulation and Message instructions.
- Review the Bit Manipulation instructions.
- Read and Write information on a communication network using the Message instruction and Produced/Consumed tags.
- Create methods to test programs, develop traps, and follow the flow of information through a series of instructions.
- Develop advanced troubleshooting skills, learn to gather clues to help eliminate non-problem spots, and draw attention to possible problem areas.
- Use the programming software as a diagnostic and troubleshooting tool.
- Develop a thorough understanding of, and the safety issues related to, Forcing in the Logix (ControlLogix) family of PLCs.
- Discuss appropriate safety issues.