## Allen-Bradley SLC-500 Intermediate 2
## Programming & Troubleshooting
## Module: 213

Ladder logic programs often contain a combination of contacts, coils, timers, and counters with additional instructions manipulating data in the program at the word level. The Intermediate Programming course explores the compare, compute, data conversion, file manipulation, and message instructions. Programs using these instructions include data gathering, calculations, date and time stamping, shift reports, data concentration, totalizing, averaging, etc.

This programming course begins developing the skills necessary to trace the flow of word information into, through, and out of logic programs using the word and file manipulation instructions. This additional programming knowledge provides the ability to comprehend and troubleshoot detailed control circuits. In addition, the system status and diagnostic data is reviewed and used to help diagnose and solve in-plant control problems quickly. *Course is conducted using Rockwell RSLogix-500 or Advanced Interface (AI) software, depending on student preference.*

*Prerequisites: Module: 211, Module: 212*

### Objectives

- Refresh knowledge of the major functional components of the Allen-Bradley SLC-500 programmable control system.
- Explore in detail the Data Table files present in the SLC-500 controller.
- Investigate in greater detail the purpose and use of the G configuration files and the M data files.
- Discuss how to take advantage of Program Files as subroutines.
- Refresh knowledge of the contact, coil, timer, and counter instructions.
- Discuss programming concept differences and similarities among the PLC-5 and SLC-500 controllers.
- Explore and test the functionality of the comparison, math, data conversion, file manipulation, and Message instructions.
- Apply these instructions to create and test your own programs in extensive, hands-on lab sessions designed to stimulate and develop a logical approach to problem solving.
- Explore the Fault, Discrete Input Interrupt (DII), and Selectable Timed Interrupt (STI) sub routines.
- Investigate the methods of emulating the block transfer (BTR and BTW) instructions for word level Remote I/O communication in the SLC-500 RIO Scanner module.
- Read and Write information on the Data Highway Plus (DH+) or DH-485 network using Global data and the Message instruction.
- Create methods to test programs, develop traps, and to 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.