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Hands-On Technical Workshops
by Ron Beaufort
Course Specifications: **P1540**

Level 1 and 2 Skills for the PLC-5 Using RSLogix5 – Discrete & Analog Signals

This **five-day, hands-on** technical workshop for plant maintenance personnel is designed to:

- cover the basic hardware associated with the **PLC-5** family of Allen-Bradley programmable logic controllers
- cover the principle features of the **RSLogix5** software used to program and monitor the operation of the PLC-5
- cover the basic techniques required to work with both **discrete** and **analog** signals associated with PLC-5 control systems

The following topics will be presented through hands-on exercises and demonstrations:

- Basic hardware of the PLC-5 system
- Navigating the principal features of the RSLogix5 software package
- Fundamentals of the PLC-5 ladder logic instruction set
- Accessing online help for RSLogix5
- Online and offline editing skills
- I/O hardware addressing; two-slot, one-slot, and half-slot modes
- I/O wiring and basic troubleshooting
- Monitoring the PLC data tables
- Emergency Cut-Off systems; wiring for fail-safe operation
- Using I/O forces; techniques and safety issues
- Accessing and resetting fault codes
- Using the RSLogix5 ladder and database search features
- Entry-level programming skills; linear sequencing
- Safety issues when using latches vs. “seal-around” programming techniques
- Subroutines, Jumps, etc. and their effects on the program scan
- Documenting the PLC program with address comments and rung comments
- Downloading and uploading PLC programs
- Using Block Transfers to communicate with intelligent I/O modules; both integer and BT-type control blocks
- Using configuration screens for intelligent I/O modules such as 1771-IFE, 1771-OFE2, etc.
- Wiring and processing analog inputs and outputs such as 4-20mA and other common instrumentation signals
- Troubleshooting techniques using Find All, Custom Data Monitor, Histogram, Trend, Cross Reference, and Advanced Diagnostics Search features
- Math functions required for scaling analog input and output signals
- Using indirect and indexed addressing
- Using the Message instruction to communicate between PLCs on the Data Highway Plus network
- Configuring the RSLinx software for various communication hardware

This course will be conducted as a laboratory workshop using the **Problem/Solution** method of instruction. There are absolutely no transparency projectors and no PowerPoint slide shows involved. Instead, all of the course material is presented through a series of hands-on exercises which each student performs on **real-world equipment**. By working through the same types of tasks which are commonly encountered in the field, students not only master the material more rapidly but also improve their **problem-solving** skills and develop the **confidence** required to apply their new abilities on the job. Most students, particularly those with a maintenance technician background, respond enthusiastically to the challenges of this dynamic style of instruction.

Students successfully completing this course will be awarded 4.0 Continuing Education units.

In order to provide each student with an **individual workstation** and with adequate instructor attention, the class size is normally limited to six students. **Please note** that this five-day workshop covers a large amount of material and that some students may consider the pace to be quite demanding.

It is **required** that each student have a good working knowledge of Microsoft Windows and also adequate mouse and keyboard skills to enable active participation in the lab exercises. Although the pace of this workshop will **not** accommodate students who lack these skills, we offer a separate one-day hands-on computer workshop to provide these prerequisites.

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