Ron Beaufort Training, LLC
5900 Core Avenue, #102
Charleston, SC 29406
843-437-1883 www.ronbeaufort.com

Hands-On Technical Workshops
by Ron Beaufort

Course Specifications: **W1940**

Basic Program Modification Skills for ControlLogix Using RSLogix5000

This **five-day, hands-on** course for plant maintenance personnel is custom-designed for the Acme Corporation to:

- cover the skills required to **modify ladder logic programs** for Allen-Bradley ControlLogix controllers consistent with the layout and complexity of the existing Finalizer.ACD program currently in use at the Acme plant in Anytown, AS

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

- Basic hardware of the CLX-5000 system
- Navigating the principal features of the RSLogix5000 software package
- Fundamentals of the CLX-5000 ladder logic instruction set
- Data types including DINT, INT, SINT, BOOL, REAL, STRING, User-Defined, etc.
- Online and offline editing skills
- Configuring and addressing I/O modules
- Creating, editing, and monitoring tags, aliases, and arrays
- Accessing and resetting fault codes
- Troubleshooting and program debugging techniques using the Cross Reference, Find, Trend, Browse Logic, Bookmark, and Watch List features
- Techniques and practices involved in modifying an existing ControlLogix ladder logic project
- Fundamental concepts of ControlLogix Tasks, Programs, and Routines
- Basic concepts of the PID instruction as included (but not implemented) in the customer's existing program
- Safety issues when using retentive vs. non-retentive programming techniques
- Toggling bits and using I/O forces for program commissioning and debugging; techniques and safety issues
- Fundamentals of Emergency Cut-Off systems; wiring and programming for fail-safe operation
- Using the Message instruction to communicate with the "Bundler" SLC processor over Ethernet
- Documenting the CLX program with tag descriptions and rung comments
- Basic concepts of interfacing CLX with PanelView and Wonderware systems
- Concepts and practices of using the following specific instructions: AND, LIM, CMP, CPT, BSR, BTD, RTO, TOF, JSR, MSG, AFI, and GSV as used in the customer's existing program, and other ladder logic instructions as required
- Tracing logic which uses Produced and Consumed tags
- Configuring RSLinx software drivers for various communication hardware
- Programming math functions for signal scaling and for conversions between raw data values and engineering units
- Systematically analyzing and tracking signals and variables through the ladder logic program
- Basic concepts of FLEX I/O ControlNet systems including 1794-ACN15 adapters
- Working with FLEX I/O digital modules such as 1794-IB16, 1794-OB16, and 1794-OB8EP
- Working with FLEX I/O analog modules such as 1794-IE8 and 1794-OE4

This course will be conducted 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 and programming projects 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 will be limited to three students. **Please note** that this five-day course covers a large amount of material and that most students will consider the pace to be quite demanding. This is not an entry-level class. It is **required** that students have the skills covered in our S1540 course or equivalent knowledge and experience.

Ron Beaufort Training, LLC
5900 Core Avenue, #102
Charleston, SC 29406

Phone: 843-437-1883
Fax: 843-225-0512
Email: ronbeaufort@gmail.com