



Allen-Bradley ControlLogix Systems Course Level 1

Software	RSLogix 5000
PLC Type	Allen-Bradley ControlLogix
Duration	5 Days
Max. Delegates	6

Course Outline

Upon completion of the course the student should:

- Understand exactly how a PLC works.
- Understand basic PLC concepts.
- Be able to troubleshoot a ControlLogix / CompactLogix and/or FlexLogix PLC systems in a competent and confident manner.
- Be able to understand ControlLogix hardware configuration and be able to add or replace modules when a fault occurs.
- Be able to operate the Allen-Bradley software to make it perform common tasks.
- Understand basic instruction set and be able to make minor modifications to software.
- Be able to backup and restore a PLC program when required.
- Be able to perform basic system diagnostics when a problem occurs.
- Be able to understand and back track through a simple programs.
- Understand Basics and be able to troubleshoot DeviceNet Network.
- Use of RSNetworkx.
- Understand Basics and be able to configure and troubleshoot ControlNet Network.
- Understand Basics and be able to configure and troubleshoot ethernet Network.

Course Equipment per Delegate

- Allen-Bradley ControlLogix, CompactLogix or FlexLogix PLC.*
- PC or laptop.
- Simulator.

* *Systems designated to suit delegate requirements.*

Course Content

To fault find a system you need to know *exactly* how it works.

How exactly does a PLC work?

- Am I getting the input to the PLC?
- The LED on the output card means I am getting voltage out right?
- What exactly happens in-between? There's more than just a program in the CPU.
- How exactly does it scan the program?
- What is this Watchdog Timer? Is it that important?
- Can I use the same output twice? That's bad programming isn't it?
- A PLC is a logic controller, so use a logical approach to fault find it.
- What are the 8 simple test points to check?
- What is the difference between forcing and toggling?

How do I do the following?

- Check power is ON and PLC is in right mode (RUN or Program).
- Check LEDs for fault definition.
- Check and change modules if required (with spares and without spares).
- Removing modules with power on.
- Establish link to PLC (RSLinx).
- Link to CPU via RS232 port, Ethernet or DH+ module.
- Checking Ethernet connections using PING instruction.
- Create a blank project and take a backup.
- Open the correct project offline and link to PLC.
- Interrogate errors in controller properties, common faults.
- Identify if it is a hardware or software fault.
- Identify if it is a PLC or comms fault.
- Access fault information about IO cards.
- Change the battery, with power on.
- Working with CPUs with non-volatile (EEPROM) memory.
- Check all settings against a template, node address etc.
- Check hardware configuration, IO errors.
- Clear memory and download program.
- Monitor program
- Is it latched or unlatched?
- Altering values in tag tables.
- Back-tracking through a program to establish where power flow stops.
- Searching for specific operands and instructions.
- Using bookmark function.
- Changing timer, counter values online.
- Making minor modifications offline and online.
- Create a trend-to-trend address status or values.
- Altering timer, counter and other values if required.
- Force a parameter if required.

- Toggling addresses to move program on in sequence.
- Call up documentation to assist with software diagnostics.
- Printing cross reference / program listings etc.

Background information also covered.

DeviceNet

- An Appreciation of DeviceNet cabling options.
- Using RSNetworkx for DeviceNet.
- Understand the difference between polled, strobed, change of state (COS), and cyclic data production.
- Understanding data mapping.
- Map a 1756-SDN scanner data table.
- Verify operation of the network.
- Change device parameters via the parameter list, test for change in functionality.
- Work with a variety of IO devices.
- Troubleshoot DeviceNet network.

ControlNet

- Introduction to ControlNet.
- ControlNet cabling options.
- Configure ControlNet Flex IO modules.
- Understanding data mapping.
- Verify operation of the network.
- Troubleshoot ControlNet network.

Ethernet

- Basics of ethernet, IP addresses, subnet masks, use of ping function.
- An appreciation of ethernet cabling options, hubs, routers.
- Configure ethernet Flex IO modules.
- Understanding data mapping.
- Verify operation of the network.
- Troubleshoot ethernet network.

Understanding the following

- Understand basic ladder programs.
- Basic Instructions, contacts, latch, unlatch etc.
- Timers and counters.
- Comparators, maths.
- Fault finding tips.

Booking and More Information

To book onto this course or for more information regarding course content, schedule or pricing please email sales@foxmere.com or call the main office on 01922 349 999.

