

[Allen Bradley ControlLogix Systems Course Level 1](#)

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Software	RSLogix 5000
Duration	5 Days
PLC-Type	Allen Bradley ControlLogix
Pre-Requisites	No prerequisites this is a beginners course
Maximum Delegates	6

Brief Description

- * To understand exactly how a PLC works
- * To 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 Documentation

- * Training Log
- * Pre Course Exercises
- * Course Exercises
- * Post Course Exercises
- * Filofax Pocket Reference Guides

Course Content

Course Content can be tailored accordingly dependent upon customers specific requirements 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? does it?
- * What exactly happens in between? ,theres 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?
- * The PLC is in RUN, that means theres a program right? does it?
- * FORCING a bit and toggling a bit is pretty much the same yeah? depends on which PLC

Then you need to Know the specifics HOW DO I DO THE FOLLOWING? (some straight forward some not so)

- * Check power is ON and PLC is in right mode (RUN or Program)
- * Check LEDs for fault definition (what exactly does the LED tell me)
- * Check and Change Modules if required (with spares and without spares)
- * Removing modules with power ON (will I blow anything up)
- * Establish link to PLC (RSLinx)
- * Link to CPU via RS232 port, Ethernet or DH+ module
- * Checking Ethernet connections using PING instruction (very useful)
- * Create a blank project and take a backup (just in case I mess up)
- * Open the correct project Off Line 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 I/O cards
- * Change the battery, (with power ON of course)
- * Working with CPUs with Non Volatile (EEPROM) memory
- * Check all settings against a template, Node Address etc.
- * Check Hardware Configuration, I/O errors
- * Clear Memory and Download program
- * Monitor program
- * Is it Latched or Unlatched I'm never quite sure?
- * 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 On Line
- * Making minor mods Off Line and On line
- * Creat 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. 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 I/O devices
- * Troubleshoot DeviceNet Network CONTROLNET
- * Introduction to ControlNet
- * ControlNet cabling options
- * Configure ControlNet Flex I/O modules

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- * Understanding data mapping
- * Verify operation of the network
- * Troubleshoot ControlNet Network ETHERNET
- * Basics of EtherNet, IP addresses, Subnet Mask, use of ping function
- * An Appreciation of EtherNet cabling options, hubs, routers
- * Configure EtherNet Flex I/O modules
- * Understanding data mapping
- * Verify operation of the network
- * Troubleshoot EtherNet Network Background information also covered Understanding of the following:
 - * Number formats, bits, words, double words
 - * Binary, Real, Integer, DINT,
 - * Basic Communications, RS232 and Ethernet
 - * Network Basics
 - * Setting up a simple Ethernet network
 - * Tasks, Programs and Routines
 - * How to monitor various blocks
 - * Understand basic Ladder programs
 - * Basic Instructions, contacts, Latch, Unlatch etc.
 - * Timers, Counters
 - * Comparators, Maths
 - * Fault finding tips

Equipment

- * ControlLogix, CompactLogix or FlexLogix PLC (systems designated to suit delegates requirements)
- * PC or Laptop
- * Simulator

Solutions, Not Courses.