Allen Bradley SLC 500 PLC + DeviceNet

Software	RSLogix + RSNetworx
Duration	5 Days
PLC-Type	SLC500 PLC and DeviceNet
Pre-Requisites	Ideally previous PLC experience not suitable for absolute beginner
Maximum Delegates	4

Brief Description

* Be able to recognise DeviceNet hardware and be able to replace modules when a fault occurs.
* Be able to operate the RSNetworx software to make it perform certain tasks.
* Understand basic concept of nodes, commissioning, scanner cards , scan list, addressing etc and communications with the PLC
* Be able to replace DeviceNet nodes when required.
* Be able to perform basic system diagnostics when a problem occurs

Course Documentation

* Training Log
* Pre Course Exercises
* Course Exercises
* Post Course Exercises
* Filofax Pocket Reference Guides
* DeviceNet Course Notes

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? 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

* Check and Change Modules if required (with spares and without spares)
* System connection
* Establish link to PLC (RSLinx, a major problem area these days)
* 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 Status table
* Identify if it is a hardware or software fault?
* Identify if it is a PLC or Comms fault
* Change the battery
* Check all settings against a template, Node Address etc.
* Check Hardware Configuration
* Clear Memory and Download program
* Check software against latest copy (Compare function)
* Monitor program
* Searching for specific operands and instructions
* Changing timer, counter values On Line
* Making minor mods Off Line and On line
* Check or create a Custom Monitor table to establish parameter status
* Create a Histogram to monitor address transitions
* Creat a Trend to trend address status or values
* Altering timer, counter and other data table 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.
* Configuration of DeviceNet Network
* Basic communications, RS 232, baud rates etc.
* Refresher on RS Linx
* Connecting Communications Cables
* Configuring Scanner Card
* Understanding LED indications
* Understanding error mesages
* Power requirements
* Configuring Devices using RS Networx
* Online and Offline modes
* Saving Configurations
* Programming within the SLC 500
* Reading and writing information to and from the PLC
* Addressing of the Nodes on the Network
* Node commissioning
* EDS devices and libraries
* Replacement of faulty input/ output cards
* Replacement of faulty devices
* Generation of documentation to assist fault finding Background information also covered

Understanding of the following:

* Number formats, bits,words,
* Binary, floating point, integer
* Program blocks and Data Tables, B3, T4, N7 etc
* How to monitor various blocks
* Understand basic Ladder programs

* Basic Instructions, contacts, Set, reset etc.
* Timers, Counters
* Comparators, Maths
* Altering values in a data table
* Toggling v Forcing
* Back tracking through a program to establish where power flow stops
* Overall reset procedure
* Fault finding tips

Equipment

* SLC500 PLC
* DeviceNet Network
* PC or Laptop
* Simulator

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