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<b>Software</b>	MicroWin V4.0
<b>Duration</b>	4 Days
<b>PLC-Type</b>	Siemens S7 200 PLC
<b>Pre-Requisites</b>	No prerequisites this is a beginners course
<b>Maximum Delegates</b>	6

## Brief Description

- \* Be able to recognise S7 200 hardware and be able to replace modules when a fault occurs.
- \* Be able to operate the Step 7 200 software to make it perform certain tasks.
- \* Understand basic S7 200 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.

## Course Documentation

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

## 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)
- \* S7 Family hardware (Basic Specifications)
  - \* Basic Hardware Troubleshooting
  - \* Theory of Operation
  - \* I/O Addressing

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- \* Understanding program notation I, Q, T, C, V, L, etc
- \* Step 7 User Interface
- \* Setting Up a Project
- \* Hardware Configuration
- \* Program Representation (LAD, FBD, STL)
- \* Program Structure & Logic Block Types
- \* Basic Instruction Set (Timers, Counters, Flip Flop's)
- \* Local and Global variables
- \* Data Types and Parameter types
- \* Data Blocks
- \* Establishing Online Connections
- \* Upload and Download Projects
- \* Diagnostic functions (Module Information / Diagnose Hardware)
- \* Program Monitoring
- \* Using Cross Reference function to aid fault finding
- \* Searching for specific operands and instructions
- \* Monitor and Modify Variables
- \* Rewire Function
- \* Program Documentation (Symbols, Comments)
- \* Printing Cross Reference / Program Listings etc.

## Equipment

- \* S7 200 PLC
- \* PC or Laptop
- \* Simulator

*Solutions, Not Courses.*