

Module 1 - Oscilloscope Practical Applications Class - 32 hours

This will be an instructor-led class focusing on enhancing the student abilities to use an Oscilloscope as a practical debug tool, much in the same way and degree that the Digital Voltmeter (DVM) is currently being used. At the conclusion of the course the student will be well versed in the advantages and applications of the oscilloscope. The benefit would be for the student to be able to debug at a significantly higher level and be better suited to resolve the complex problems seen in today's industrial world.

This class is highly recommended for technical staff responsible for the daily debug and analysis of PLC or CNC machinery.

Key Instrumentation the students will be exposed to:

- Rhode Schwarz RTC 1002 Oscilloscope
- Hantek DSO1062B Oscilloscope
- Hewlett Packard 54600B Oscilloscope
- Tektronix 2230 Oscilloscope
- RS 232 Breakout Tester

Key areas on the Oscilloscope to be reviewed:

- Wave form fundamentals
- Probes - Passive, Active, Differential & Current
- Lissajous Patterns and how they apply to practical troubleshooting
- FFT Analysis and how they apply to practical troubleshooting
- Oscilloscope Math Functions
- Ac & Dc Coupling methods and when to use them
- Triggering - Edge, Pulse, Serial & Logic
- Communication Buss Analysis - Can, Lin, Ethernet, and RS 232
- Electrical Noise Analysis
- Sampling Rate & Bandwidth and why it matters