2500 Series® System Training
Product Bulletin

# CTI 2500 Series® System Training
## Course 2: Advanced System Architecture and Application Development

Classic

## Description

This course is intended for students that have experience with Automation and Control Systems including control devices and PLCs. Students should have basic proficiency in RLL or control programming. Course 1: Basic System Architecture and Application Development is a prerequisite.

The following topics are covered:

- Advanced system architecture
- PLC scan cycle analysis and tuning
- Configuration of 2500 Series® Processors
- Setup and operation of Profibus-DP networks
- Programming of analog alarms
- Theory and programming of PID loops
- SF programming
- Advanced RLL programming
- Optimizing PLC performance

## Hands-On Experience

The student will receive hands on experience with a live training system. Each Training System will provide a 2500 Series® Base, power supply, processor, digital input module, digital output module, and an analog input/ output module connected to a PC Application Development Station.

## Course Schedule

*Review of PLC Architecture*

- Comparison to 545/555 controllers
- Memory structure and data formatting
- I/O concepts

*Review of PLC Scan Cycle*

- Tasks executed during PLC scan
- Scan mode options

*Review of PLC Configuration*

- Switches and jumpers
- Memory configuration
- I/O configuration
- I/O status indicators
- PLC Scan time setup

*Review of Profibus-DP Configuration*

- Profibus network setup
- Profibus operation
- Profibus status indicators

*Analog Alarms*

- Definition
- Alarm operation within PLC
- Alarm configuration parameters
- Alarm SF variables

*Analog Control (PID) Loops*

- Definitions and theory of control Loops
- PID loop operation within PLC
- Ramp/Soak feature
- Loop configuration parameters
- Loop SF variables
- Process simulation using proportional-integral-derivative control elements
- Control loop tuning

*Special Function Programs and Subroutines*

- SF program types and methods of execution
- SF instruction set and operators
- Passing parameters to SF subroutines
- Memory access within SF programs
- SFP/SFS configuration
- SF error reporting (SFEC)
- On-line editing of SF programs

*Advanced RLL Programming*

- Cyclic RLL task (TASK2)
- Immediate I/O instructions
- Fast loop PID instruction
- RLL subroutines

*Optimizing PLC Performance*

- Tuning PLC scan time setup
- Monitoring PLC process times (PPET variables)

*Question/Answer Time*

## Ordering Information

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| 2500-TR-S2 | Course 2: Advanced System Architecture and Application Development |

*Contact CTI or your CTI distributor for pricing and training schedule or visit controltechnology.com/training*

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