

# Delta PLC Programming and Industrial Automation

## Course Description

This program focuses on Delta PLC hardware, WPLSoft programming, ladder logic, industrial automation applications, and troubleshooting techniques. Participants gain hands-on experience with PLC wiring, programming, and problem-solving in real-time industrial automation scenarios.

## Audience Profile

- Engineering students (Electrical, Electronics, Instrumentation, Automation)
- Industrial maintenance engineers
- Automation professionals and technicians
- Fresh graduates interested in industrial automation

## Prerequisite

- Basic knowledge of electrical circuits and digital logic
- Familiarity with industrial automation concepts is helpful but not mandatory

## Course Objective

- Introduce Delta PLC hardware and product range
- Provide practical exposure to PLC wiring, configuration, and programming
- Develop skills in ladder logic programming and troubleshooting
- Prepare participants to implement automation solutions using Delta PLCs in industrial settings

## Table of Contents (TOC)

### Module 1: Fundamentals of Automation & PLC

- Basics of industrial automation and control systems
- Introduction to PLCs and their role in automation
- Delta PLC product range overview (DVP, AS series)
- PLC hardware components and specifications
- Working principles and signal types (digital, analog)

## **Module 2: Delta PLC Architecture & Wiring**

- PLC block diagram and working
- Power supply requirements and wiring
- I/O module addressing and configuration
- Interfacing sensors and actuators
- Hands-on wiring exercises with Delta PLC hardware

## **Module 3: WPLSoft Software & Environment Setup**

- Introduction to WPLSoft
- Project creation and CPU selection
- Online/offline modes, uploading, and downloading
- Hardware communication (RS232, RS485, Ethernet)
- Hands-on: Connecting PLC to PC and basic program transfer

## **Module 4: Ladder Logic Programming Basics & FBD**

- Ladder logic symbols and structure
- Bit logic instructions (NO, NC, coil, set/reset)
- Timer instructions (TON, TOF, TP)
- Counter instructions (CTU, CTD)
- Program debugging and simulation in WPLSoft

## **Module 5: Intermediate PLC Programming**

- Comparison and arithmetic instructions
- Move and data transfer instructions
- Internal relays and memory areas
- Introduction to Servo Motors

## **Module 6: Troubleshooting, Diagnostics & Best Practices**

- Common PLC programming errors and solutions
- Online monitoring and force testing

- Program backup and restore
- Safety guidelines in PLC automation

**Practical Projects (Throughout Training)**

- Motor start/stop with interlocking
- Traffic light control system
- Conveyor belt sequencing
- Automatic tank filling system
- Analog level control simulation
- Mini project combining multiple PLC functions