

PLC Programming Fundamentals - Course Outline

Course Details

Duration: 20 Hours

Price: R15,900

Mode: Live Online Training with Instructor

Course Overview

This course provides a comprehensive introduction to Programmable Logic Controllers (PLCs), covering their architecture, programming, troubleshooting, and real-world applications. Participants will learn to write, debug, and optimize PLC programs for industrial automation.

Course Modules

Module 1: Introduction to PLCs (2 Hours)

- What is a PLC?
- History and evolution of PLCs
- PLC hardware components
- Types of PLCs and their applications
- Understanding I/O modules (Digital & Analog)

Module 2: PLC Hardware and Wiring (3 Hours)

- Power supply and wiring basics
- PLC input and output configurations
- Sensors, actuators, and interfacing
- Safety considerations and best practices

Module 3: PLC Programming Basics (5 Hours)

- Introduction to ladder logic programming
- Understanding logic gates and boolean algebra
- Writing and simulating basic PLC programs
- Hands-on practice with PLC programming software

Module 4: Advanced PLC Programming (5 Hours)

- Timers and counters
- Data handling and memory functions
- Function blocks and structured programming
- Troubleshooting and debugging programs

Module 5: Industrial Communication & HMI Integration (3 Hours)

- Introduction to industrial communication protocols (Modbus, Profibus, Ethernet/IP)

- Human-Machine Interface (HMI) basics
- Configuring HMI for PLC interaction
- Data logging and remote monitoring

Module 6: Final Project & Assessment (2 Hours)

- Real-world industrial automation project
- Debugging and optimizing PLC code
- Final assessment and certification

Who Should Attend?

- Electrical engineers
- Automation professionals
- Technicians working in manufacturing
- Anyone interested in industrial automation

Training Format

- Live Online Classes with an expert instructor
- Hands-on practical exercises
- Real-world case studies and project-based learning