

€ TRAINING

PLC Telemetry and SCADA Technologies





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Introduction:

This training program provides participants with essential knowledge and skills to effectively utilize Programmable Logic Controllers PLCs, telemetry systems, and SCADA Supervisory Control and Data Acquisition technologies. It empowers them to implement robust industrial automation solutions for monitoring and controlling processes efficiently.

Program Objectives:

By the end of this program, participants will be able to:

- Understand the principles and functionalities of PLCs, telemetry systems, and SCADA.
- Gain proficiency in designing and configuring PLC-based telemetry solutions.
- Learn techniques for data acquisition, monitoring, and control using SCADA.
- Develop skills in troubleshooting and optimizing PLC, telemetry, and SCADA systems.
- Implement best practices for secure and efficient industrial automation.

Target Audience:

- Automation engineers and technicians.
- PLC programmers and system integrators.
- SCADA system operators and administrators.
- Maintenance personnel and control system engineers.
- Professionals involved in industrial automation and process control.

Program Outline:

Unit 1:

Introduction to PLC, Telemetry, and SCADA Technologies:

- Overview of PLCs, Telemetry, and SCADA Systems.
- Roles and Applications of PLCs in Industrial Automation.

- Principles of Telemetry for Remote Monitoring.
- SCADA Architecture and Components.
- Standards and Regulations for Industrial Automation.

Unit 2:

PLC Programming and Integration:

- Basics of PLC Programming Languages Ladder Logic, Function Block Diagrams.
- PLC Hardware and Communication Interfaces.
- Interfacing PLCs with Sensors and Actuators.
- Programming Best Practices for PLC-based Telemetry Systems.

Unit 3:

Telemetry Systems and Communication Protocols:

- Types of Telemetry Systems Radio Telemetry, Satellite Telemetry.
- Communication Protocols for Telemetry Modbus, DNP3, MQTT.
- Telemetry Data Acquisition and Transmission.
- Telemetry System Design Considerations.
- Case Studies on Telemetry Applications.

Unit 4:

SCADA System Design and Implementation:

- Designing SCADA Systems for Industrial Applications.
- SCADA Software Selection and Configuration.
- Human-Machine Interface HMI Design Principles.
- Real-time Data Acquisition and Monitoring.
- SCADA Security and Cybersecurity Measures.

Unit 5:



Optimization and Troubleshooting:

- Optimizing PLC, Telemetry, and SCADA System Performance.
- Troubleshooting Techniques for PLC-based Systems.
- Diagnosing Communication and Hardware Issues.
- Preventive Maintenance and System Upgrades.
- Continuous Improvement in Industrial Automation.