multisoft
Systems

Advanced PLC Programming Training

COURSE CONTENT

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

Multisoft Systems' Advanced PLC Programming Training is designed to help automation professionals deepen their expertise in modern industrial control systems and stay competitive in today's fast-evolving manufacturing and process industries. This program goes beyond basic PLC concepts and focuses on advanced programming techniques, system integration, and real-world troubleshooting skills that are essential for designing, maintaining, and optimizing automated operations.

Module 1: Advanced PLC Architecture and Hardware

- ✓ PLC system components and advanced configurations
- ✓ CPU, memory, I/O modules, and power supply
- ✓ Rack and distributed I/O systems
- ✓ Redundancy and high-availability systems

Module 2: Advanced PLC Programming Concepts

- ✓ Review of ladder logic and advanced instructions
- ✓ Function Block Diagram (FBD) and Structured Text (ST)
- ✓ Program structuring and modular programming
- ✓ Data blocks and memory management

Module 3: Advanced Control Techniques

- ✓ PID control and tuning
- ✓ Motion control basics
- ✓ Sequencing and state machines
- ✓ Time-based and event-driven programming

Module 4: HMI and SCADA Integration

- ✓ PLC–HMI communication
- ✓ Tag management and screen development
- ✓ Alarm and trend configuration
- ✓ SCADA connectivity

Module 5: Industrial Communication and Networking

- ✓ Industrial Ethernet and fieldbus systems
- ✓ Protocols such as Modbus, Profibus, Profinet, and Ethernet/IP
- ✓ Network configuration and diagnostics

Module 6: PLC Troubleshooting and Diagnostics

- ✓ Fault detection and error handling
- ✓ Debugging techniques
- ✓ Online monitoring and forcing
- ✓ Backup and recovery

Module 7: Safety and Standards in PLC Systems

- ✓ Safety PLCs and safety relays
- ✓ Functional safety standards (IEC, ISO)
- ✓ Risk assessment and compliance

Module 8: Performance Optimization and Best Practices

- ✓ Program efficiency and scan time optimization
- ✓ Memory and data optimization
- ✓ Documentation and version control

Module 9: Industry 4.0 and Advanced Applications

- ✓ PLC integration with IoT and smart systems
- ✓ Data acquisition and remote monitoring
- ✓ Cybersecurity in industrial automation