

€ TRAINING

PLC Telemetry and SCADA Technologies



1 - 5 September 2024
Online

PLC Telemetry and SCADA Technologies

REF: O1241 DATE: 1 - 5 September 2024 Venue: Online - Fee: 2500 Euro

Introduction:

This is a highly relevant, industrially based course that will update the skills and knowledge of Technicians and Engineers alike. The course is "hands-on" using industry-standard PLCs in a simulated environment. Through this approach, the delegate will progress from learning the fundamentals of PLC application to writing, debugging, and finally designing their own programs.

Radio and wire-based telemetry systems, essential for an understanding of modern communication methods deployed in the field are also studied and explained. These are vital for a comprehensive understanding of their use with not only programmable controllers but any Instrumentation/Controller remote application.

The course also includes a study of modern SCADA technologies. Again, together with a hands-on approach using a modern industrially compliant SCADA software package, the delegate will acquire new and updated skills essential in any fast-moving industrial environment.

Course Objectives:

At the end of this course the participants will be able to:

- Give an understanding of the operation, architecture, and use of an industry-standard PLC for Control purposes.
- Use a hands-on approach, enable the delegate to investigate the operation of the PLC through designing, building, and testing typical programs in the ladder programming language using industry-standard PLCs in a simulated environment.
- Become familiar and confident with the PLC, Telemetry, and SCADA environments.
- Understand the concepts of Radio Telemetry and acquire the knowledge relating to the application, limitation, and use of frequency bands used.
- Gain an understanding and knowledge of common wire-based communication protocols.
- Disseminate and share experience and knowledge with other delegates through open session discussions hence broadening the knowledge base of all.

Targeted Audience:

- Electronic Engineers and Technicians.
- Electrical Engineers and Technicians.
- Control Engineers and Technicians.
- Communication Engineers and Technicians.
- I.T. and Software Engineers and Technicians.
- Design Engineers.
- Instrumentation Engineers and Technicians.
- Instrument and Process Control Engineers and Technicians.
- Mechanical Engineers and Technicians.
- Operations Engineers.
- Process Engineers and Technicians.
- Production Professionals.
- Project design Professionals.

Course Outlines:

Unit 1: Introduction to Control Strategies:

- Continuous Control systems.
- Sequential Control systems.
- Relay based systems.
- Relay based programming examples.
- PLC v relay systems.
- Programming formats.
- Logical continuity.
- Software familiarisation.
- Introduction to industry-standard PLC programming software.
- Construction of test program.

Unit 2: PLC Architecture:

- System architecture.
- Memory and I/O types.
- Scanning algorithms.
- Program Scan cycle.
- Introduction.
- Elements of a Radio Link.
- The radio spectrum.
- Frequency ranges.
- System design considerations.
- Serial transfer of Programs.
- Design exercise 1.

Unit 3: PLC Programme Development:

- Analysis of PLC programs.
- Design methodology and development of PLC programs.
- Timer method of program development.
- Design exercise 2. - Program design of Process Controller.
- Communication methods Simplex, Half-Duplex, Full-Duplex:
- RS232 standard.
- RS422 standard.
- RS485 standard.
- Sequence Controller and Application boards.

Unit 4: Analog I/O and Processing:

- Analog inputs.
- A/D and D/A conversion.
- Programming analog modules and advanced instructions.
- Implementing PID control using a PLC.
- System architecture.
- Configuration and operation.
- Introduction to industry-standard SCADA software.
- Design and development of a new SCADA project.

Unit 5: PLC/SCADA v DCS Systems:

- Design and development of a new SCADA project continued.
- Case Study - An Industrial Process.
- Consolidation of Previous practical activities.