

# Programmable Logic Controllers (PLC) and SCADA System Course

## Venue Information

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**Venue:** London UK

**Place:**

**Start Date:** 2025-09-29

**End Date:** 2025-10-03

## Course Details

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**Net Fee:** £4750.00

**Duration:** 1 Week

**Category ID:** EAPET

**Course Code:** EAPET-57

## Syllabus

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### Course Description

This course is designed to benefit you with practical up-to-date information on the application of PLC's and SCADA to the automation and process control of plants and factories. It is suitable for people who have little or no exposure to PLC and SCADA but expect to become involved in some or all aspects of PLC installation and SCADA Programming. It aims to give practical advice from experts in the field, to assist you to correctly plan, program and install a PLC with a shorter learning curve and more confidence.

### Course Objective

PLC/SCADA systems are still both widely misunderstood and widely misapplied. This course, Fundamentals of PLC and SCADA Systems, is designed to provide engineers and technicians with the basic theoretical and practical understanding of PLC and SCADA systems and how this can be applied to optimize their systems in terms of safety,

## **Basic components of PLC**

- Fundamental principles
- CPU
- Memory
- I/O section and addressing
- Digital I/O modules
- Analog I/O modules

## **PLC programming**

- Ladder logic instructions
- Basic arithmetic instructions
- Matrix logic
- File or block manipulation
- Jump, skips and subroutines
- PLC instruction sets
- Memory organisation
- Input/output addressing
- Duplicate coils
- Timers

## **Installation Practices**

- Interference or noise reduction
- Cable spacing and routing
- Earthing and grounding
- Safety circuits
- Control room requirements and layout

## **Code quality and maintenance**

- Program maintenance
- Change procedures
- Defect detection
- Quality measurement and demonstration

## **Advanced programming**

### **Analog control**

- Analog inputs
- Signal filtering
- Analog control

### **Fault tolerance**

- Improving system availability
- Hot standby systems
- Cold standby

### **Serial Data Communications**

- RS-232/485 Standards
- Modbus Protocol
- Local Area Networks
- Ethernet
- Token Bus

### **Safety related systems**

- Safety lifecycle
- Systematic failures/rates
- Voting systems
- Software reliability
- Field equipment

### **Upgrading Strategies**

### **Simulation and testing**

- Factory acceptance testing (FAT)
- Transport and reassembly
- Simulation packages
- Physical test panels
- I/O emulation systems

### **Problem Isolation and Testing**

- Communication System
- Master Stations

### **SCADA Software**

- Communications protocol
- Data objects
- Interchangeability
- Proprietary systems