

PLC, Telemetry, and SCADA Systems: Control and Automation Essentials

Learn to design and implement PLC, radio telemetry, and SCADA solutions for industrial control and automation.

7

MODULES

39

TOPICS

COURSE OVERVIEW

This comprehensive course delves into the fundamentals of Programmable Logic Controllers (PLCs), telemetry systems, and Supervisory Control and Data Acquisition (SCADA) systems. Participants will explore various control strategies, PLC architectures, radio telemetry systems, PLC programming, analogue I/O processing, and SCADA fundamentals. Through hands-on exercises and real-world examples, attendees will gain the knowledge and skills necessary to design, implement, and maintain efficient control and automation solutions in industrial settings.

WHO THIS COURSE IS FOR

This course is designed for engineers, technicians, and professionals working in industries such as manufacturing, process control, energy, utilities, and automation. Individuals seeking to enhance their understanding of control systems, PLCs, telemetry, and SCADA systems will greatly benefit from this course.

PREREQUISITES

- Participants should have a basic understanding of electrical circuits, control systems, and industrial automation concepts. Familiarity with programming languages and software tools will be advantageous but not mandatory.

LEARNING OBJECTIVES

- Understand the principles and applications of continuous, sequential, and relay-based control systems
- Differentiate between PLC and relay systems, and comprehend various programming formats and logical continuity in PLCs
- Explore PLC architecture, including system architecture, memory types, I/O types, and scanning algorithms
- Gain insights into radio telemetry systems, including elements of a radio link, radio spectrum, and system design considerations
- Develop proficiency in PLC programming, including analysis, design methodology, timer-based programming, and serial data communications
- Master analogue I/O processing, A/D and D/A conversion, and advanced instructions for analogue modules in PLCs
- Acquire knowledge of SCADA system architecture, configuration, operation, and design using industry-standard SCADA software
- Learn about local area networks (LANs) and their relevance in SCADA implementation

7 Modules, 39 Topics

01

Introduction to Control Strategies

TOPICS

Continuous Control Systems · Sequential Control Systems · Relay-Based Systems · Relay-Based Programming Examples

02

Introduction to PLC Systems

TOPICS

- PLC vs. Relay Systems
- Programming Formats
- Logical Continuity
- Software Familiarization
- Introduction to Industry Standard PLC Programming Software
- Construction of Test Programme

03

PLC Architecture

TOPICS

System Architecture · Memory and I/O Types · Scanning Algorithms · Program Scan Cycle

04

Radio Telemetry Systems

TOPICS

Introduction · Elements of a Radio Link · The Radio Spectrum · Frequency Ranges · System Design Considerations · Serial Transfer of Programs

05

PLC Programme Development

TOPICS

- Analysis of PLC Programs
- Design Methodology and Development of PLC Programs
- Timer Method of Program Development
- Program Design of Process Controller
- Serial Data Communications
- Communication Methods (Simplex, Half-Duplex, Full-Duplex)
- RS232 Standard
- RS422 Standard
- RS485 Standard
- Sequence Controller and Application Boards

06

Analogue I/O and Processing

TOPICS

- Analogue Inputs and Outputs
- A/D and D/A Conversion
- Programming Analogue Modules and Advanced Instructions

07

Introduction to SCADA

TOPICS

- System Architecture
- Configuration and Operation
- Introduction to Industry Standard SCADA Software
- Design and Development of a new SCADA Project
- Design and Development of a SCADA Project
- Local Area Networks (LAN's)

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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