Special Courses · SC251

# SCADA-Based Control and Monitoring System for Power Generation Stations

Barcelona (Spain) · 14 - 25 Dec 2026

| Date | Venue | Duration |
|---|---|---|
| **14 - 25 Dec 2026** | **Barcelona (Spain)** | **2 Weeks** |
| Fee | Ref | Language |
| **£8,000 GBP** | **SC251** | **English** |

## Introduction

Welcome to the SCADA-Based Control and Monitoring System for Power Generation Stations training programme, where we embark on a transformative journey into the heart of modern industrial control technology. In this dynamic and immersive course, we invite you to explore the boundless possibilities of Supervisory Control and Data Acquisition (SCADA) systems and their profound impact on the landscape of power generation.

As the global demand for reliable and efficient energy continues to surge, the imperative for robust control and monitoring solutions within power generation stations has never been more pressing. SCADA systems stand at the forefront of this technological revolution, serving as the nerve centre that orchestrates the seamless operation and optimisation of complex power infrastructures.

Throughout this comprehensive training programme, we will unravel the intricacies of SCADA systems, illuminating their pivotal role in revolutionising the way we manage and control power generation processes. From the foundational principles to advanced methodologies, participants will traverse a spectrum of knowledge, equipping themselves with the expertise needed to navigate the evolving challenges of the energy industry.

So, prepare to embark on an exhilarating odyssey into the realm of SCADA technology, where innovation knows no bounds, and the power to shape the future lies within your grasp. Welcome aboard, and let the journey begin.

## Course Objectives of SCADA-Based Control and Monitoring System for Power Generation Stations

### Upon completing this programme, participants will be able to:

- Understand the fundamentals of SCADA systems and their relevance to power generation stations.
- Explore the components and architecture of SCADA systems specific to power plants.

- Learn to configure, operate, and troubleshoot SCADA systems effectively.
- Gain proficiency in data acquisition, visualisation, and analysis for informed decision-making.
- Enhance skills in utilising SCADA systems for real-time monitoring, control, and optimisation of power generation processes.
- Acquire knowledge of cybersecurity measures to safeguard SCADA infrastructure from potential threats.

## Course Methodology of SCADA-Based Control and Monitoring System for Power Generation Stations

- Lectures and Expert Insights: Leading industry experts will share their insights and best practices.
- Case Studies: Analyse real-world talent acquisition challenges and solutions.
- Group Discussions: Engage in meaningful discussions and share experiences with peers.
- Role-Playing and Simulations: Practice recruitment scenarios to enhance skills.
- Hands-on Workshops: Gain practical experience in using recruitment tools and techniques.

## Organisational Impact of SCADA-Based Control and Monitoring System for Power Generation Stations

### This training programme will have a positive impact on organisations by:

- Improved operational efficiency through real-time monitoring and control of power generation processes.
- Enhanced reliability and uptime of power generation stations leading to minimised downtime and increased productivity.
- Streamlined maintenance activities through predictive analytics and remote diagnostics enabled by SCADA systems.
- Better compliance with regulatory requirements and standards governing the power generation industry.
- Cost savings through optimised resource utilisation and reduced energy losses.

## Personal Impact of SCADA-Based Control and Monitoring System for Power Generation Stations

### Participants will experience personal growth and development, including:

- Enhanced professional skills and knowledge in SCADA systems, bolstering career prospects in the power generation sector.
- Increased confidence in managing and troubleshooting SCADA systems, leading to greater job satisfaction.
- Opportunities for career advancement and specialisation in the field of industrial automation and control.
- Development of critical thinking and problem-solving abilities through practical application of SCADA concepts.
- Contribution to personal growth and professional development in alignment with industry trends and technological advancements.

## Who Should Attend

### This training programme is ideal for:

- Control engineers and technicians involved in the operation and maintenance of power generation stations.
- Electrical engineers seeking to expand their expertise in SCADA systems and industrial automation.
- Plant managers and supervisors responsible for overseeing power generation operations.
- Professionals transitioning into roles related to SCADA implementation and management within the energy sector.
- Individuals interested in gaining comprehensive knowledge of SCADA applications in power generation for career advancement.

## Course Outlines

### Day 1

### Introduction to SCADA Systems and Power Generation

- Overview of SCADA technology
- Role of SCADA in power generation
- Key components and functionalities

### Day 2

### SCADA System Architecture for Power Plants

- Architecture and network topology
- Communication protocols and standards
- Redundancy and fault tolerance mechanisms

### Day 3

### Configuration and Integration of SCADA Systems

- SCADA software platforms and tools
- Configuration of data acquisition points
- Integration with PLCs and RTUs

### Day 4

### Real-Time Monitoring and Data Visualisation

- SCADA HMI (Human-Machine Interface) design principles
- Visualisation of process variables and alarms
- Trending and historical data analysis

### Day 5

### SCADA System Security and Cybersecurity

- Threats and vulnerabilities in SCADA systems
- Best practices for securing SCADA infrastructure
- Implementation of access control measures

### Day 6

### SCADA System Diagnostics and Troubleshooting

- Common issues and challenges in SCADA operations

- Diagnostic tools and techniques
- Troubleshooting exercises and case studies

### Day 7

### SCADA System Optimisation and Performance Enhancement

- Optimisation strategies for power generation processes
- Performance monitoring and benchmarking
- Continuous improvement methodologies

### Day 8

### Remote Monitoring and Control with SCADA Systems

- Remote access and control capabilities
- Mobile and web-based SCADA applications
- Case studies on remote operation scenarios

### Day 9

### SCADA System Maintenance and Lifecycle Management

- Preventive maintenance practices
- Software updates and version control
- Lifecycle planning and system upgrades

### Day 10

### Practical Applications and Hands-On Projects

- Simulation exercises in SCADA system operation
- Case studies on SCADA implementation in power generation stations
- Final assessment and certificate distribution

### Register or ask about this course online

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