Process Control in Plants Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Process Control in Plants is a critical discipline in modern industrial automation, focusing on the regulation, monitoring, and optimization of physical and chemical processes in manufacturing environments. Process Control in Plants Training Course provides a comprehensive foundation in advanced process control systems, industrial automation, SCADA integration, PLC-based control, PID tuning, real-time optimization, and smart manufacturing technologies. Participants will gain hands-on knowledge of how to stabilize processes, reduce variability, improve product quality, and enhance operational efficiency across industries such as oil & gas, chemical processing, power generation, pharmaceuticals, water treatment, and food production.

With the rapid evolution of Industry 4.0, IoT-enabled process control, AI-driven predictive control, digital twin technology, and advanced instrumentation systems, modern plants demand highly skilled professionals who can manage complex control loops and automated systems. This course bridges the gap between theory and industrial application by focusing on real-time process optimization, control loop diagnostics, automation architecture, and data-driven decision-making to ensure maximum plant reliability, safety, and productivity.

Programme Curriculum

Process Control in Plants Training Course

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Course Duration

5 days

Course Objectives

1. Master fundamentals of industrial process control systems
2. Understand PID control tuning and loop optimization techniques
3. Apply SCADA systems for real-time monitoring and control
4. Configure and troubleshoot PLC-based automation systems
5. Analyze process dynamics and control loop behavior
6. Implement advanced regulatory and supervisory control strategies
7. Utilize Industrial IoT (IIoT) for smart plant operations
8. Apply predictive maintenance using process data analytics
9. Optimize plant efficiency using energy management systems
10. Design and interpret P&ID (Piping and Instrumentation Diagrams)
11. Integrate DCS (Distributed Control Systems) in industrial plants
12. Enhance safety using alarm management and interlock systems
13. Apply digital twin and simulation models for process optimization

Target Audience

1. Process Engineers
2. Instrumentation & Control Engineers
3. Maintenance Technicians
4. Plant Operators & Supervisors
5. Automation Engineers
6. Chemical & Manufacturing Engineers
7. Energy & Utility Plant Personnel
8. Technical Managers & Industrial Consultants

Course Modules

Module 1: Fundamentals of Process Control Systems

- Process variables: flow, pressure, temperature, level
- Open-loop vs closed-loop control systems
- Industrial instrumentation overview
- Sensors and transmitters in process industries
- Case Study: Temperature control in a chemical reactor stabilizing output quality

Module 2: PID Control and Loop Tuning

- Proportional, Integral, Derivative control theory
- PID tuning methods
- Loop stability and response analysis
- Common tuning errors and corrections
- Case Study: Optimizing boiler drum level control in a power plant

Module 3: PLC-Based Automation Systems

- PLC architecture and programming basics
- Ladder logic fundamentals
- Input/output modules and wiring
- Troubleshooting PLC faults
- Case Study: Automated bottling plant control system

Module 4: SCADA Systems and Industrial Monitoring

- SCADA architecture and communication protocols
- Real-time data acquisition and visualization
- Alarm handling and event logging
- Remote plant monitoring systems
- Case Study: Water treatment plant SCADA integration

Module 5: Distributed Control Systems (DCS)

- DCS structure and components
- Control room operations and interfaces
- Redundancy and reliability systems
- Process control hierarchy
- Case Study: Oil refinery distributed control optimization

Module 6: Advanced Process Control Strategies

- Feedforward and cascade control
- Ratio and split-range control
- Multivariable control systems
- Adaptive control techniques
- Case Study: Chemical blending process optimization

Module 7: Industrial IoT & Smart Manufacturing

- IIoT architecture in process industries
- Cloud-based monitoring systems
- Edge computing in plant automation
- Data integration from sensors and devices
- Case Study: Smart predictive maintenance in manufacturing plant

Module 8: Safety, Optimization & Digital Twin

- Alarm management systems
- Safety Instrumented Systems (SIS)
- Energy optimization techniques
- Digital twin simulation models

- Case Study: Digital twin implementation in a power generation facility

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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