Real-Time Process Monitoring 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

In today's era of Industry 4.0, Smart Manufacturing, Industrial IoT (IIoT), Digital Transformation, Predictive Analytics, and AI-driven Operations, organizations require real-time visibility into production processes to improve efficiency, quality, safety, and profitability. Real-Time Process Monitoring enables organizations to capture, analyze, visualize, and act upon operational data instantly, facilitating proactive decision-making and continuous process optimization. By integrating advanced monitoring systems, SCADA platforms, IoT sensors, cloud analytics, and machine learning technologies, organizations can significantly reduce downtime, improve asset utilization, and achieve operational excellence.

Real-Time Process Monitoring Training Course provides participants with practical knowledge and hands-on skills to design, implement, manage, and optimize Real-Time Process Monitoring systems. Participants will explore Industrial Automation, Data Acquisition, Smart Sensors, Edge Computing, Digital Twins, Industrial Cybersecurity, Predictive Maintenance, Operational Intelligence, KPI Dashboards, and Advanced Analytics. Through real-world case studies and industry best practices, learners will gain the expertise required to drive digital transformation initiatives and enhance operational performance across modern industrial environments.

Programme Curriculum

Real-Time Process Monitoring Training Course

Introduction

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Course Duration

5 days

Course Objectives

Upon completion of this training, participants will be able to:

1. Understand Real-Time Process Monitoring concepts and Industry 4.0 frameworks.
2. Implement Industrial IoT (IIoT) solutions for process visibility.
3. Configure SCADA and HMI systems for operational monitoring.
4. Analyze real-time production data using advanced analytics tools.
5. Develop KPI dashboards and Operational Intelligence platforms.
6. Apply Predictive Maintenance strategies using AI and Machine Learning.
7. Integrate Edge Computing and Cloud Monitoring architectures.
8. Utilize Digital Twin technologies for process optimization.
9. Identify process bottlenecks using Root Cause Analysis techniques.
10. Enhance operational efficiency through data-driven decision making.
11. Implement Industrial Cybersecurity controls for monitoring systems.
12. Design automated alerts, notifications, and event management workflows.
13. Lead Smart Manufacturing and Digital Transformation initiatives.

Target Audience

1. Process Engineers
2. Production Managers
3. Operations Supervisors
4. Automation & Control Engineers
5. Maintenance Engineers
6. Plant Managers
7. Industrial IoT Specialists
8. Data Analysts and Digital Transformation Professionals

Course Modules

Module 1: Fundamentals of Real-Time Process Monitoring

- Introduction to process monitoring principles
- Industry 4.0 and Smart Factory concepts
- Process data lifecycle management
- Key performance indicators (KPIs)
- Real-time decision-making frameworks

- **Case Study:** Smart Manufacturing implementation reducing production downtime by 25%.

Module 2: Industrial IoT and Smart Sensors

- IIoT architecture and ecosystem
- Sensor technologies and data acquisition
- Edge devices and gateway integration
- Wireless industrial communication
- Data quality and sensor calibration
- **Case Study:** IIoT deployment for predictive asset monitoring in a manufacturing plant.

Module 3: SCADA, HMI, and Data Visualization

- SCADA system architecture
- Human Machine Interface (HMI) design
- Alarm management systems
- Data historian implementation
- Interactive dashboards and reporting
- **Case Study:** SCADA modernization project improving operational visibility.

Module 4: Real-Time Data Analytics and Operational Intelligence

- Streaming data analytics
- Real-time KPI monitoring
- Statistical Process Control (SPC)
- Root Cause Analysis techniques
- Operational Intelligence platforms
- **Case Study:** Analytics-driven reduction of process variability and waste.

Module 5: Predictive Maintenance and AI Applications

- Predictive Maintenance strategies
- Machine Learning fundamentals
- Failure prediction models
- Asset health monitoring
- Maintenance optimization techniques
- **Case Study:** AI-based predictive maintenance reducing equipment failures by 40%.

Module 6: Digital Twins and Process Optimization

- Digital Twin fundamentals
- Virtual process modeling
- Process simulation techniques
- Scenario analysis and optimization
- Continuous improvement methodologies
- **Case Study:** Digital Twin deployment for production optimization and cost reduction.

Module 7: Industrial Cybersecurity and Data Governance

- Industrial cybersecurity fundamentals
- OT and IT convergence security
- Risk assessment methodologies

- Data governance frameworks
- Compliance and regulatory requirements
- **Case Study:** Securing industrial monitoring systems against cyber threats.

Module 8: Implementation Strategy and Future Trends

- Monitoring system implementation roadmap
- Change management for digital transformation
- Cloud-based monitoring solutions
- AI-powered autonomous operations
- Emerging technologies and future trends
- **Case Study:** Enterprise-wide real-time monitoring transformation program.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- 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
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:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com