Real-Time Production Monitoring in Manufacturing Training Course

Professional Development Training Course Outline

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

Course Introduction

Real-Time Production Monitoring in Manufacturing is a critical enabler of Industry 4.0, empowering organizations to achieve operational excellence through live data tracking, predictive insights, and automated decision-making. Real-Time Production Monitoring in Manufacturing Training Course is designed to equip professionals with advanced knowledge of IoT-enabled manufacturing systems, smart factory dashboards, real-time analytics, and production visibility tools that drive efficiency, reduce downtime, and improve overall equipment effectiveness (OEE).

In today's competitive industrial landscape, manufacturers are increasingly adopting digital twin technology, MES (Manufacturing Execution Systems), AI-driven predictive maintenance, and cloud-based production monitoring platforms. This course provides a structured pathway to mastering these technologies, enabling participants to transform traditional production lines into intelligent, data-driven ecosystems that support continuous improvement and lean manufacturing strategies.

Programme Curriculum

Real-Time Production Monitoring in Manufacturing Training Course

Introduction

Real-Time Production Monitoring in Manufacturing is a critical enabler of Industry 4.0, empowering organizations to achieve operational excellence through live data tracking, predictive insights, and automated decision-making. Real-Time Production Monitoring in Manufacturing Training Course is designed to equip professionals with advanced knowledge of IoT-enabled manufacturing systems, smart factory dashboards, real-time analytics, and production visibility tools that drive efficiency, reduce downtime, and improve overall equipment effectiveness (OEE).

In today’s competitive industrial landscape, manufacturers are increasingly adopting digital twin technology, MES (Manufacturing Execution Systems), AI-driven predictive maintenance, and cloud-based production monitoring platforms. This course provides a structured pathway to mastering these technologies, enabling participants to transform traditional production lines into intelligent, data-driven ecosystems that support continuous improvement and lean manufacturing strategies.

Course Duration

5 days

Course Objectives

1. Master real-time production monitoring systems and Industry 4.0 frameworks
2. Understand IoT integration in smart manufacturing environments
3. Implement OEE (Overall Equipment Effectiveness) tracking dashboards
4. Analyze production data using big data analytics and AI tools
5. Design and deploy Manufacturing Execution Systems (MES)
6. Improve operational efficiency through lean manufacturing principles
7. Apply predictive maintenance strategies using machine learning
8. Develop real-time KPI tracking systems for production lines
9. Integrate SCADA systems with cloud-based platforms
10. Optimize workflow using digital twin simulations
11. Enhance decision-making with real-time data visualization
12. Reduce downtime using automated fault detection systems
13. Enable smart factory transformation using cyber-physical systems

Target Audience

1. Manufacturing Engineers
2. Production Managers
3. Industrial Automation Specialists
4. Plant Supervisors
5. Quality Assurance Engineers
6. Operations Managers
7. IoT Solution Architects
8. Supply Chain and Logistics Professionals

Course Modules

Module 1: Introduction to Smart Manufacturing & Industry 4.0

- Evolution of manufacturing systems
- Core principles of Industry 4.0
- Smart factory ecosystem overview
- Role of IoT and automation
- Data-driven manufacturing transformation
- **Case Study:** Siemens Smart Factory implementation in Amberg, Germany

Module 2: Real-Time Production Monitoring Systems

- Fundamentals of production tracking
- Sensor integration in production lines

- Live data acquisition systems
- Machine connectivity protocols
- Real-time reporting dashboards
- **Case Study:** Toyota production line real-time monitoring system

Module 3: Manufacturing Execution Systems (MES)

- MES architecture and components
- Integration with ERP systems
- Work order tracking and scheduling
- Production control automation
- MES performance optimization
- **Case Study:** Bosch MES deployment for global manufacturing efficiency

Module 4: IoT in Manufacturing

- Industrial IoT architecture
- Smart sensors and devices
- Edge computing in factories
- Machine-to-machine communication
- IoT security in manufacturing
- **Case Study:** GE Digital Industrial IoT platform implementation

Module 5: Data Analytics & AI in Production

- Big data collection techniques
- Predictive analytics models
- Machine learning for production forecasting
- AI-based anomaly detection
- Dashboard visualization tools
- **Case Study:** Coca-Cola smart bottling plant analytics system

Module 6: OEE & Performance Optimization

- Understanding OEE metrics
- Downtime analysis techniques
- Bottleneck identification
- Productivity benchmarking
- Continuous improvement strategies
- **Case Study:** Nestlé production optimization using OEE dashboards

Module 7: Predictive Maintenance Systems

- Condition-based monitoring
- Vibration and sensor analysis
- Failure prediction models
- Maintenance scheduling automation
- Cost reduction strategies
- **Case Study:** Rolls-Royce predictive maintenance in engine manufacturing

Module 8: Digital Twin & Smart Factory Simulation

- Digital twin fundamentals
- Virtual production modeling
- Simulation of production scenarios
- Real-time synchronization with physical systems
- Future-ready factory design
- **Case Study:** Airbus digital twin for aircraft manufacturing optimization

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