Real-Time Operational Data 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

Real-Time Operational Data Monitoring is a mission-critical capability in modern digital enterprises, enabling organizations to continuously track, analyze, and respond to live operational data streams. Real-Time Operational Data Monitoring Training Course is designed to equip professionals with advanced skills in real-time analytics, Industrial IoT (IIoT), SCADA integration, data streaming architectures, and live KPI dashboards. Participants will learn how to transform raw operational signals into actionable insights using low-latency monitoring systems, event-driven architectures, and predictive intelligence frameworks.

In today’s fast-paced digital ecosystem, industries such as manufacturing, energy, logistics, telecom, and smart cities rely heavily on real-time operational intelligence, anomaly detection, cloud-based monitoring platforms, and automated alerting systems. This course bridges the gap between operational technology (OT) and information technology (IT), empowering learners to design scalable monitoring solutions using big data pipelines, edge computing, machine learning-driven alerts, and real-time visualization tools for optimal decision-making and operational resilience.

Programme Curriculum

Real-Time Operational Data Monitoring Training Course

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Course Duration

5 days

Course Objectives

1. Understand fundamentals of real-time operational data monitoring systems
2. Design streaming data architectures for enterprise environments
3. Implement IoT sensor integration and data acquisition systems
4. Develop real-time KPI dashboards for operational visibility
5. Apply anomaly detection techniques for live system monitoring
6. Configure alerting systems for operational risk mitigation
7. Integrate SCADA and industrial control systems with analytics platforms
8. Build data pipelines using real-time processing frameworks
9. Enable predictive maintenance using operational data trends
10. Optimize system performance through continuous monitoring
11. Use cloud platforms for scalable real-time data processing
12. Implement event-driven architecture for operational systems
13. Ensure data accuracy, latency reduction, and system reliability

Target Audience

1. Data Analysts and Business Intelligence Professionals
2. Industrial Engineers and Operations Managers
3. IT Infrastructure and Systems Engineers
4. IoT Developers and Embedded Systems Engineers
5. SCADA and Control System Operators
6. DevOps and Site Reliability Engineers (SREs)
7. Manufacturing and Supply Chain Professionals
8. Smart City and Utility System Planners

Course Modules

Module 1: Fundamentals of Real-Time Data Monitoring

- Concepts of real-time data flow and latency
- Difference between batch vs streaming systems
- Core components of monitoring architecture
- KPI definition and operational metrics
- Introduction to event-driven systems
- **Case Study:** Smart factory monitoring system reducing machine downtime by tracking live production KPIs.

Module 2: IoT and Sensor Data Integration

- Industrial IoT architecture overview
- Sensor data collection and transmission protocols
- Edge vs cloud data processing
- Device connectivity standards
- Data normalization techniques
- **Case Study:** Oil refinery using IoT sensors to track pressure, temperature, and leak detection in real time.

Module 3: Streaming Data Architecture

- Real-time data pipeline design
- Message brokers and event streaming concepts
- Data ingestion frameworks
- Fault tolerance and scalability design
- Stream partitioning strategies
- **Case Study:** E-commerce platform handling millions of live transactions using streaming architecture.

Module 4: Real-Time Dashboards & Visualization

- Dashboard design principles
- KPI visualization techniques
- Tools for live monitoring dashboards
- Custom alerts and widgets
- UX for operational decision-making
- **Case Study:** Logistics company optimizing delivery routes using real-time fleet dashboards.

Module 5: Anomaly Detection & Alerting Systems

- Statistical anomaly detection methods
- Threshold-based vs AI-based alerts
- Event correlation techniques
- Noise reduction in alerts
- Incident response automation
- **Case Study:** Banking system detecting fraudulent transactions in milliseconds using anomaly detection.

Module 6: Predictive Maintenance & Analytics

- Predictive modeling for equipment failure
- Time-series forecasting methods
- Condition-based monitoring systems
- Machine learning for predictive insights
- Maintenance scheduling optimization
- **Case Study:** Wind energy company reducing turbine failure rates using predictive maintenance analytics.

Module 7: Cloud-Based Real-Time Monitoring Systems

- Cloud architecture for real-time systems
- Scalable data storage solutions
- Serverless streaming applications
- Security and compliance considerations

- Multi-region monitoring setups
- **Case Study:** Global SaaS company ensuring uptime with distributed cloud monitoring infrastructure.

Module 8: SCADA & Industrial Control Integration

- SCADA system fundamentals
- Real-time control system architecture
- Data acquisition and control loops
- Integration with analytics platforms
- Industrial cybersecurity fundamentals
- **Case Study:** Power grid operator using SCADA integration to stabilize electricity distribution in real time.

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
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

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