Industrial Data Analytics 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

Industrial Data Analytics is transforming modern manufacturing, energy, logistics, and process industries by enabling data-driven decision-making, predictive intelligence, and real-time operational optimization. With the rise of Industry 4.0, IoT sensors, big data ecosystems, cloud computing, and AI-powered analytics, organizations are leveraging industrial data to improve productivity, reduce downtime, enhance quality control, and achieve operational excellence. Industrial Data Analytics Training Course is designed to equip learners with hands-on skills in industrial data processing, machine learning applications, predictive maintenance, and smart factory analytics.

In today’s competitive industrial environment, companies are increasingly adopting AI-driven analytics platforms, digital twins, edge computing, and advanced visualization tools to gain actionable insights from complex datasets. This course bridges the gap between theory and practice by integrating real-world industrial case studies, tools like Python, Power BI, SQL, SCADA data systems, and cloud-based analytics platforms. Participants will gain expertise in transforming raw industrial data into meaningful insights that drive efficiency, sustainability, and profitability.

Programme Curriculum

Industrial Data Analytics Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand fundamentals of Industrial Data Analytics & Industry 4.0 ecosystems
2. Apply data-driven decision-making in manufacturing environments
3. Use Python for industrial data processing and automation
4. Implement predictive maintenance models using machine learning
5. Analyze sensor, IoT, and SCADA data streams
6. Build real-time dashboards using Power BI/Tableau
7. Perform time-series forecasting for industrial operations
8. Develop anomaly detection systems for equipment monitoring
9. Integrate cloud computing (AWS/Azure) for industrial analytics
10. Use big data frameworks for large-scale industrial datasets
11. Apply statistical quality control and process optimization techniques
12. Understand digital twin and smart factory concepts
13. Improve operational efficiency using AI-powered insights

Target Audience

1. Industrial Engineers
2. Data Analysts & Data Scientists
3. Manufacturing Managers
4. Mechanical & Electrical Engineers
5. IT & OT (Operational Technology) Professionals
6. Supply Chain & Logistics Professionals
7. Quality Assurance Specialists
8. Students & Researchers in Industrial Engineering/Data Science

Course Modules

Module 1: Introduction to Industrial Data Analytics

- Fundamentals of Industry 4.0 and smart manufacturing
- Types of industrial data
- Data lifecycle in industrial systems
- Role of AI & IoT in industrial analytics
- Case Study: Smart factory transformation in automotive industry

Module 2: Data Collection & Industrial IoT Systems

- IoT sensors and data acquisition systems
- SCADA, PLC, and MES data integration
- Edge vs cloud data processing
- Data quality and preprocessing techniques
- Case Study: Predictive monitoring in oil refinery systems

Module 3: Data Processing with Python & SQL

- Data cleaning and transformation techniques
- SQL for industrial databases
- Python libraries
- Handling missing and noisy industrial data
- Case Study: Production line efficiency optimization

Module 4: Statistical Analysis & Process Control

- Descriptive and inferential statistics
- SPC (Statistical Process Control) charts
- Root cause analysis techniques
- Quality control frameworks
- Case Study: Reducing defects in semiconductor manufacturing

Module 5: Machine Learning for Industrial Analytics

- Supervised and unsupervised learning
- Predictive maintenance models
- Failure prediction algorithms
- Model evaluation techniques
- Case Study: Machine failure prediction in textile industry

Module 6: Time Series Analysis & Forecasting

- Industrial time-series data handling
- ARIMA and forecasting models
- Demand and production forecasting
- Trend and seasonality analysis
- Case Study: Energy consumption forecasting in manufacturing plant

Module 7: Visualization & Dashboard Development

- Power BI/Tableau for industrial dashboards
- KPI tracking and real-time reporting
- Data storytelling techniques
- Alert systems and monitoring dashboards
- Case Study: Real-time production monitoring dashboard for factory

Module 8: Advanced Industrial Analytics

- Digital twin technology concepts
- AI integration in smart factories
- Cloud-based industrial analytics (AWS/Azure)
- Edge AI and real-time decision systems

- Case Study: Digital twin implementation in aerospace manufacturing

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

Start Date	End Date	Location	Price
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

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