AI-Based Demand Forecasting 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

In today’s fast-evolving industrial landscape, AI-based demand forecasting, predictive analytics, and data-driven decision-making are transforming how manufacturers optimize production, reduce costs, and respond to market volatility. AI-Based Demand Forecasting in Manufacturing Training Course is designed to equip professionals with cutting-edge knowledge in machine learning forecasting models, time series analysis, and intelligent supply chain planning. By leveraging advanced analytics, big data integration, and automation technologies, organizations can significantly enhance forecast accuracy, minimize inventory risks, and improve operational agility in competitive manufacturing environments.

This comprehensive program bridges the gap between theory and real-world application, focusing on AI-powered forecasting tools, deep learning algorithms, and digital transformation strategies tailored for manufacturing. Participants will gain hands-on experience with forecasting techniques, demand sensing, and AI model deployment, enabling them to drive innovation and achieve smart manufacturing excellence. The course emphasizes practical insights, industry case studies, and modern tools to empower professionals to implement scalable AI solutions for demand forecasting challenges.

Programme Curriculum

AI-Based Demand Forecasting in Manufacturing Training Course

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Course Duration

5 days

Course Objectives

1. Understand AI-driven demand forecasting concepts and applications
2. Apply machine learning algorithms for accurate demand prediction
3. Master time series forecasting models (ARIMA, LSTM, Prophet)
4. Utilize big data analytics in manufacturing forecasting
5. Implement predictive maintenance and forecasting integration
6. Enhance supply chain optimization using AI insights
7. Develop data preprocessing and feature engineering skills
8. Deploy AI forecasting models in real-time environments
9. Improve inventory optimization and demand planning
10. Leverage cloud-based AI platforms for scalability
11. Analyze forecast accuracy metrics and KPIs
12. Integrate IoT data for demand sensing and forecasting
13. Drive digital transformation in smart manufacturing

Target Audience

1. Supply Chain Managers
2. Production Planning Engineers
3. Data Analysts & Data Scientists
4. Operations Managers
5. Manufacturing Engineers
6. Business Intelligence Professionals
7. IT & Digital Transformation Leaders
8. Inventory & Logistics Managers

Course Modules

Module 1: Introduction to AI in Demand Forecasting

- Fundamentals of **AI in manufacturing**
- Evolution of **forecasting techniques**
- Role of **predictive analytics**
- Key challenges in demand forecasting
- Overview of AI tools and platforms
- **Case Study:** AI adoption in a global automotive manufacturer improving forecast accuracy by 30%

Module 2: Data Collection & Preprocessing

- Data sources in manufacturing
- **Data cleaning and transformation**
- Handling missing and noisy data
- Feature engineering techniques
- Data visualization for insights
- **Case Study:** Improving forecast reliability using structured ERP data

Module 3: Time Series Forecasting Techniques

- Introduction to **time series analysis**
- ARIMA and SARIMA models
- Seasonality and trend analysis
- Forecast evaluation methods
- Model tuning strategies
- **Case Study:** Seasonal demand prediction in consumer goods manufacturing

Module 4: Machine Learning for Forecasting

- Regression and classification models
- **Supervised learning techniques**
- Random Forest and XGBoost
- Model validation and testing
- Performance optimization
- **Case Study:** Machine learning improving spare parts demand forecasting

Module 5: Deep Learning & Advanced Models

- Introduction to **deep learning forecasting**
- LSTM and neural networks
- Demand sensing using AI
- Handling large-scale datasets
- Model deployment challenges
- **Case Study:** LSTM model predicting electronics demand fluctuations

Module 6: AI Integration with Supply Chain

- **Supply chain analytics** integration
- Inventory and warehouse optimization
- Demand planning automation
- Risk management using AI
- End-to-end visibility solutions
- **Case Study:** AI-driven supply chain optimization reducing stockouts

Module 7: Tools & Technologies

- Overview of **AI tools (Python, TensorFlow, Power BI)**
- Cloud platforms (AWS, Azure, GCP)
- Data pipelines and automation
- Visualization dashboards
- Real-time forecasting systems

- **Case Study:** Cloud-based forecasting system for global manufacturing operations

Module 8: Implementation & Strategy

- Building AI forecasting roadmap
- Change management in organizations
- ROI measurement and KPIs
- Scaling AI solutions
- Future trends in **smart manufacturing**
- **Case Study:** Digital transformation success with AI forecasting in FMCG sector

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