Advanced Inventory Optimization in Manufacturing Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s highly competitive and digitally driven manufacturing landscape, Advanced Inventory Optimization has become a critical capability for achieving operational excellence, cost efficiency, and supply chain resilience. Advanced Inventory Optimization in Manufacturing Training Course is designed to equip professionals with cutting-edge techniques in demand forecasting, inventory analytics, AI-driven planning, lean manufacturing integration, and supply chain optimization strategies. Participants will gain hands-on expertise in reducing excess stock, minimizing stockouts, improving service levels, and enhancing overall inventory turnover using data-driven decision-making frameworks.

With the rise of Industry 4.0, smart manufacturing, predictive analytics, and real-time inventory tracking systems, organizations are shifting from traditional inventory models to intelligent, automated optimization systems. This course integrates modern tools such as ERP systems, machine learning forecasting models, just-in-time (JIT) systems, and advanced warehouse optimization techniques. By the end of this training, participants will be able to implement scalable inventory strategies that align with global supply chain standards and improve profitability across manufacturing operations.

Programme Curriculum

Advanced Inventory Optimization in Manufacturing Training Course

Introduction

In today’s highly competitive and digitally driven manufacturing landscape, Advanced Inventory Optimization has become a critical capability for achieving operational excellence, cost efficiency, and supply chain resilience. Advanced Inventory Optimization in Manufacturing Training Course is designed to equip professionals with cutting-edge techniques in demand forecasting, inventory analytics, AI-driven planning, lean manufacturing integration, and supply chain optimization strategies. Participants will gain hands-on expertise in

reducing excess stock, minimizing stockouts, improving service levels, and enhancing overall inventory turnover using data-driven decision-making frameworks.

With the rise of Industry 4.0, smart manufacturing, predictive analytics, and real-time inventory tracking systems, organizations are shifting from traditional inventory models to intelligent, automated optimization systems. This course integrates modern tools such as ERP systems, machine learning forecasting models, just-in-time (JIT) systems, and advanced warehouse optimization techniques. By the end of this training, participants will be able to implement scalable inventory strategies that align with global supply chain standards and improve profitability across manufacturing operations.

Course Duration

10 days

Course Objectives

1. Master Advanced Inventory Optimization Techniques
2. Apply Demand Forecasting Models in Manufacturing
3. Implement AI-Driven Inventory Management Systems
4. Improve Supply Chain Efficiency and Responsiveness
5. Optimize Safety Stock and Reorder Point Calculations
6. Reduce Inventory Holding and Operational Costs
7. Enhance Warehouse Space Utilization Strategies
8. Develop Lean Manufacturing Inventory Practices
9. Integrate ERP-Based Inventory Control Systems
10. Strengthen Production Planning and Scheduling Accuracy
11. Apply Just-in-Time (JIT) Inventory Systems
12. Utilize Predictive Analytics for Inventory Planning
13. Achieve End-to-End Supply Chain Visibility

Target Audience

- Supply Chain Managers
- Inventory Control Specialists
- Procurement Officers
- Manufacturing Engineers
- Operations Managers
- Warehouse Supervisors
- Production Planners
- ERP System Analysts

Course Modules

Module 1: Fundamentals of Inventory Management

- Inventory classification (ABC, XYZ analysis)
- Inventory cost structures
- Demand vs supply balancing
- Stock valuation techniques
- Inventory KPIs (turnover, fill rate)
- **Case Study:** Automotive parts manufacturer reducing excess stock by 22%

Module 2: Demand Forecasting Techniques

- Time series forecasting
- Seasonal demand analysis
- Regression models
- AI-based prediction tools
- Forecast accuracy improvement
- **Case Study:** FMCG company improving forecast accuracy by 35%

Module 3: Advanced Inventory Optimization Models

- EOQ (Economic Order Quantity)
- Multi-echelon inventory systems
- Safety stock optimization
- Stochastic inventory models
- Dynamic reorder strategies
- **Case Study:** Electronics manufacturer reducing stockouts by 40%

Module 4: Supply Chain Integration

- End-to-end supply chain mapping
- Supplier collaboration models
- Inventory synchronization
- Lead time reduction strategies
- Real-time tracking systems
- **Case Study:** Retail supply chain reducing lead time by 30%

Module 5: Lean Manufacturing & Inventory Reduction

- Waste elimination (Muda principles)
- Kanban systems
- Pull vs push systems
- Continuous improvement (Kaizen)
- Value stream mapping
- **Case Study:** Textile factory reducing inventory waste by 28%

Module 6: ERP Systems for Inventory Control

- ERP architecture overview
- Inventory module configuration
- Data integration methods
- Real-time stock monitoring
- Automation in replenishment
- **Case Study:** Pharmaceutical company improving stock visibility

Module 7: Warehouse Optimization Techniques

- Space utilization strategies
- Slotting optimization
- Picking and packing efficiency
- Automation in warehouses
- Robotics and IoT integration

- **Case Study:** E-commerce warehouse increasing efficiency by 45%

Module 8: Safety Stock & Risk Management

- Demand variability analysis
- Service level optimization
- Risk pooling strategies
- Stockout cost evaluation
- Buffer stock planning
- **Case Study:** Food industry stabilizing supply during demand spikes

Module 9: Just-in-Time (JIT) Inventory Systems

- JIT principles and applications
- Supplier synchronization
- Production scheduling alignment
- Waste reduction benefits
- JIT implementation risks
- **Case Study:** Automotive assembly line achieving zero excess inventory

Module 10: Predictive Analytics in Inventory

- Machine learning forecasting models
- Big data integration
- Pattern recognition techniques
- Predictive replenishment systems
- Data visualization tools
- **Case Study:** Retail chain improving stock prediction accuracy

Module 11: Inventory Cost Optimization

- Carrying cost reduction
- Ordering cost analysis
- Hidden cost identification
- Cost-benefit inventory trade-offs
- Financial impact modeling
- **Case Study:** Manufacturing firm cutting inventory cost by 18%

Module 12: Multi-Location Inventory Management

- Centralized vs decentralized systems
- Inventory allocation strategies
- Transfer optimization
- Demand balancing across locations
- Logistics coordination
- **Case Study:** Global distributor improving distribution efficiency

Module 13: Production Planning Integration

- Master production scheduling
- Capacity planning alignment
- Material requirement planning (MRP)

- Bottleneck analysis
- Workflow synchronization
- **Case Study:** Machinery manufacturer improving production flow

Module 14: Digital Transformation in Inventory

- Industry 4.0 technologies
- IoT-enabled tracking systems
- Blockchain for inventory transparency
- Cloud-based inventory systems
- Automation trends
- **Case Study:** Smart factory achieving real-time inventory visibility

Module 15: Capstone Project – End-to-End Optimization

- Real manufacturing dataset analysis
- Inventory redesign strategy
- Forecasting model application
- KPI improvement plan
- Final optimization presentation
- **Case Study:** Full-scale transformation of a manufacturing supply chain

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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