Advanced Production Planning & Scheduling 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

Advanced Production Planning & Scheduling (APPS) in Manufacturing is a high-impact discipline designed to optimize manufacturing efficiency, supply chain synchronization, capacity utilization, and real-time production control. In today's competitive Industry 4.0 environment, organizations are increasingly adopting AI-driven scheduling systems, Lean manufacturing principles, ERP-integrated planning, and demand-driven production models to reduce lead times, eliminate bottlenecks, and improve on-time delivery performance. Advanced Production Planning & Scheduling in Manufacturing Training Course equips professionals with advanced tools and methodologies to transform traditional planning systems into agile, data-driven production ecosystems.

The course focuses on modern manufacturing challenges such as finite capacity scheduling, constraint-based planning, predictive production analytics, Just-In-Time (JIT) manufacturing, and digital twin production modeling. Participants will gain hands-on expertise in aligning production resources with fluctuating demand, optimizing shop floor execution, and implementing robust planning frameworks using globally accepted best practices. By the end of this program, learners will be able to design scalable production schedules that enhance profitability, reduce waste, and improve overall equipment effectiveness (OEE).

Programme Curriculum

Advanced Production Planning & Scheduling in Manufacturing Training Course

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Course Duration

10 days

Course Objectives

1. Master Advanced Production Planning & Scheduling (APPS) systems
2. Optimize manufacturing workflow and shop floor control
3. Implement finite capacity scheduling techniques
4. Improve production lead time reduction strategies
5. Apply Lean Manufacturing and Six Sigma integration
6. Enhance ERP-based production planning modules
7. Develop expertise in real-time scheduling optimization
8. Utilize demand forecasting and predictive analytics
9. Manage bottleneck analysis and constraint optimization
10. Improve inventory control and material requirement planning (MRP)
11. Increase Overall Equipment Effectiveness (OEE)
12. Apply AI and machine learning in production scheduling
13. Achieve supply chain synchronization and agility

Target Audience

- Production Managers and Manufacturing Supervisors
- Supply Chain and Logistics Professionals
- Industrial Engineers and Process Engineers
- Operations Managers in Manufacturing Industries
- ERP Consultants and System Implementers
- Planning and Scheduling Analysts
- Quality and Lean Six Sigma Professionals
- Plant and Factory Owners / Decision Makers

Course Modules

Module 1: Fundamentals of Production Planning

- Overview of production planning systems
- Types of production environments (job, batch, mass)
- Role of planning in manufacturing efficiency
- Key KPIs in production scheduling

- Integration with supply chain systems
- **Case Study:** Automotive assembly line planning optimization

Module 2: Master Production Scheduling (MPS)

- MPS structure and workflow
- Demand alignment techniques
- Capacity balancing strategies
- Forecast integration methods
- Schedule stabilization approaches
- **Case Study:** FMCG production forecasting and MPS alignment

Module 3: Material Requirements Planning (MRP)

- Bill of Materials (BOM) management
- Net requirement calculations
- Lead time optimization
- Inventory dependency modeling
- MRP system integration
- **Case Study:** Electronics manufacturing inventory reduction

Module 4: Capacity Planning & Utilization

- Rough-cut capacity planning
- Finite vs infinite capacity systems
- Resource loading techniques
- Bottleneck identification
- Capacity leveling strategies
- **Case Study:** Textile manufacturing capacity imbalance resolution

Module 5: Advanced Scheduling Techniques

- Priority sequencing methods
- Dispatching rules in production
- Dynamic scheduling systems
- Real-time schedule adjustments
- Constraint-based scheduling
- **Case Study:** Steel production scheduling optimization

Module 6: Lean Manufacturing Integration

- Waste elimination strategies
- Value stream mapping
- Just-In-Time (JIT) systems
- Continuous flow production
- Kaizen implementation
- **Case Study:** Lean transformation in food processing plant

Module 7: ERP in Production Planning

- ERP architecture in manufacturing
- Module integration (MM, PP, SD)

- Data-driven scheduling
- System automation benefits
- ERP optimization techniques
- **Case Study:** SAP ERP implementation in automotive plant

Module 8: Demand Forecasting Techniques

- Time series forecasting models
- Seasonal demand planning
- AI-based prediction systems
- Forecast error reduction
- Market trend analysis
- **Case Study:** Retail manufacturing demand forecasting

Module 9: Shop Floor Control Systems

- Real-time production monitoring
- Work order tracking systems
- Machine utilization analytics
- Digital dashboards
- Production reporting tools
- **Case Study:** Smart factory IoT implementation

Module 10: Constraint Management (TOC)

- Theory of Constraints fundamentals
- Identifying system bottlenecks
- Drum-buffer-rope methodology
- Flow optimization
- Throughput improvement strategies
- **Case Study:** Pharmaceutical production constraint resolution

Module 11: Inventory Optimization

- Safety stock planning
- ABC/XYZ classification
- Inventory turnover optimization
- Just-in-case vs just-in-time
- Stock level balancing
- **Case Study:** Automotive spare parts inventory reduction

Module 12: AI & Machine Learning in Scheduling

- Predictive scheduling models
- Machine learning optimization
- Smart factory automation
- Algorithm-based planning
- Data-driven decision systems
- **Case Study:** AI-based predictive scheduling in electronics manufacturing

Module 13: Production Analytics & KPI Dashboards

- OEE measurement techniques
- Real-time performance tracking
- KPI dashboard design
- Production analytics tools
- Decision support systems
- **Case Study:** KPI-driven productivity improvement in packaging industry

Module 14: Risk & Disruption Management

- Supply chain risk planning
- Production disruption handling
- Contingency scheduling
- Crisis resource allocation
- Resilience strategies
- **Case Study:** COVID-era manufacturing disruption recovery

Module 15: Digital Twin & Smart Manufacturing

- Digital twin concept in manufacturing
- Virtual production simulation
- Smart factory integration
- IoT-enabled scheduling systems
- Predictive maintenance alignment
- **Case Study:** Smart manufacturing plant transformation

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:

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