Advanced Materials Planning and Inventory Control Training Course

28 Dec 2026 - 01 Jan 2027

Cape town

4600 € (Per Person)

Ref: #IM7668_288048

Course Introduction / Overview:

This comprehensive training course provides an in-depth exploration of Materials Requirement Planning (MRP) and advanced inventory control systems, essential for navigating today's complex global supply chains. The curriculum is designed to move beyond foundational concepts to impart strategic insights and practical skills for optimizing inventory, reducing costs, and enhancing operational efficiency. We will delve into the principles established by pioneers like Joseph Orlicky, whose seminal work "Material Requirements Planning" revolutionized production scheduling, and trace the evolution from classic MRP to modern MRP II and its integration within Enterprise Resource Planning (ERP) systems. Participants will gain a robust understanding of how to balance supply and demand, manage lead times, and implement sophisticated forecasting techniques. At BIG BEN Training Center, we focus on transforming theoretical knowledge into actionable strategies, empowering professionals to make data-driven decisions that directly impact profitability and customer satisfaction. This course is your gateway to mastering the critical functions of materials planning and inventory management, ensuring your organization maintains a competitive edge through superior supply chain performance and resilience.

Target Audience / This training course is suitable for:

- Supply Chain Managers.
- Inventory Planners and Analysts.
- Operations Managers.
- Production Planners and Schedulers.
- Procurement and Purchasing Professionals.
- Logistics and Warehouse Managers.
- Materials Managers.
- ERP System Consultants.
- Demand Planners.
- Cost Accountants and Financial Analysts involved in inventory valuation.

Target Sectors and Industries:

- Manufacturing and Industrial Production.
- Retail and Consumer Goods.
- Pharmaceuticals and Healthcare.
- Automotive and Aerospace.
- Electronics and Technology.
- Food and Beverage Distribution.
- Construction and Engineering.
- Governmental agencies and public sector logistics divisions.
- Third-Party Logistics (3PL) and Freight Forwarding.

Target Organizations Departments:

- Supply Chain Management.
- Procurement and Purchasing.
- Operations and Production.
- Logistics and Distribution.
- Warehouse Management.
- Planning and Scheduling.
- Finance and Accounting.
- Information Technology (IT) for ERP systems.

Course Offerings:

By the end of this course, the participants will have able to:

- Master the core principles and mechanics of Materials Requirement Planning (MRP) systems.
- Implement various inventory classification techniques such as ABC analysis for strategic control.
- Calculate and manage safety stock levels to buffer against supply and demand uncertainty.
- Apply quantitative inventory models like Economic Order Quantity (EOQ) to minimize costs.
- Develop and evaluate demand forecasts to drive the Master Production Schedule (MPS).
- Analyze and improve key inventory performance metrics, including turnover and service levels.
- Integrate inventory control strategies with broader supply chain and logistics functions.
- Leverage technology for enhanced warehouse management and inventory tracking.
- Develop strategies for reducing lead times and managing supply chain disruptions.
- Understand the role of MRP within integrated ERP and MRP II frameworks.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, engaging, and application-focused, ensuring participants can translate learning into immediate workplace performance. We employ a blended learning approach that combines expert-led instruction with practical, hands-on activities. The sessions will feature in-depth presentations on core theories and advanced models, followed by collaborative group discussions to explore real-world challenges and solutions. A significant portion of the course is dedicated to case study analysis, where participants will dissect complex inventory scenarios from various industries to develop strategic responses. Practical exercises and simulations will be used to reinforce concepts like demand forecasting, safety stock calculation, and Bill of Materials (BOM) structuring. Participants will receive continuous feedback from the instructor and peers, fostering a dynamic learning environment. This approach moves beyond passive listening, encouraging active problem-solving and critical thinking to build lasting competence in materials planning and inventory control.

Course Agenda (Course Units):

Unit One Foundations of Materials Planning and Inventory

- Introduction to Supply Chain and Inventory Management.
- The Evolution from MRP to MRP II and ERP Systems.
- Understanding the Master Production Schedule (MPS).
- The Structure and Importance of the Bill of Materials (BOM).
- Inventory Types and Their Functions in the Supply Chain.
- Key Inventory Costs: Holding, Ordering, and Shortage Costs.
- Fundamentals of Inventory Data Accuracy and Record Keeping.

Unit Two Quantitative Inventory Control Models

- Inventory Classification using ABC Analysis.
- The Economic Order Quantity (EOQ) Model and its Assumptions.
- Calculating the Reorder Point (ROP) for Independent Demand Items.
- Determining Optimal Safety Stock Levels.
- Just-in-Time (JIT) Philosophy and its Impact on Inventory.
- Introduction to Kanban Systems for Production Control.
- Cycle Counting Programs for Maintaining Inventory Accuracy.

Unit Three Demand Forecasting and Master Scheduling

- The Role of Forecasting in Materials Requirement Planning.
- Qualitative and Quantitative Forecasting Techniques.
- Time-Series Forecasting Methods: Moving Averages and Exponential Smoothing.
- Measuring Forecast Accuracy and Bias (MAD, MSE, MAPE).
- Developing the Master Production Schedule (MPS) from the Demand Plan.
- Rough-Cut Capacity Planning (RCCP) to Validate the MPS.
- Managing and Stabilizing the Production Schedule.

Unit Four Strategic Inventory Optimization and Warehouse Management

- Key Performance Indicators (KPIs) for Inventory Management.
- Calculating and Improving Inventory Turnover Ratios.
- Strategies for Lead Time Reduction and Variability Management.
- Fundamentals of Warehouse Layout and Design for Efficiency.
- The Role of Warehouse Management Systems (WMS).
- Modern Inventory Tracking Technologies: Barcoding and RFID.
- Implementing a Successful Inventory Reduction Program.

Unit Five Modern MRP Integration and Future Trends

- Integrating MRP with Procurement and Supplier Management.
- Vendor Managed Inventory (VMI) and Collaborative Planning.
- Managing Spare Parts and MRO (Maintenance, Repair, and Operations) Inventory.
- Inventory Management in a Global and Multi-Echelon Supply Chain.
- Supply Chain Resilience and Inventory Risk Management.
- The Impact of AI and Machine Learning on Demand Forecasting.
- The Future of Inventory Management: IoT and Digital Supply Chains.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

In an era of increasing supply chain volatility and the rise of AI, how might the traditional principles of MRP and EOQ need to evolve to maintain relevance and effectiveness?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by providing a holistic and strategic perspective on materials and inventory management, moving beyond the mere mechanics of MRP calculations. While other programs may focus narrowly on software inputs and outputs, our curriculum emphasizes the critical thinking and decision-making skills required to lead in a volatile supply chain environment. We bridge the gap between the foundational theories of pioneers like Joseph Orlicky and the contemporary challenges of digital transformation, supply chain resilience, and sustainability. The content is structured to build a deep conceptual understanding, enabling participants to not only operate systems but also to design, critique, and improve them. We focus heavily on the integration of inventory strategy with other business functions like finance, procurement, and operations, ensuring participants can articulate the financial impact of their decisions. The practical application through case studies and simulations is tailored to reflect modern complexities, preparing professionals to manage uncertainty and drive tangible improvements in cost, efficiency, and service levels within their organizations.