

Basics of Supply Chain Management (BSCM) Curriculum

Version 4.0

Session 1 – Introduction to Supply Chain Management

Introduction to Manufacturing

- Role of Manufacturing
- Global Citizenship
- Manufacturing Business Model
- Business Environment

Manufacturing Environment and Process Choices

- Manufacturing Environments
- Product Life Cycle and Manufacturing Environments
- Choice of Processes and Layouts

The Manufacturing Supply Chain

- The Supply Chain Concept
- Views of the Supply Chain
- Supply Chain Organizational Issues
- Performance Measures
- Role of Materials Management

Manufacturing Planning and Control

- Objectives of Manufacturing
- Priority and Capacity Planning
- Manufacturing Planning and Control Hierarchy

From MRP To ERP

- From MRP to ERP
- From MRP to MRP II
- From MRP II to ERP

Impact of New Systems and Philosophies

Session 2 – Demand Management

Demand Management Processes

- Marketing Management
- Customer Relationship Management
- Demand Planning

Characteristics of Demand

- Independent Versus Dependent Demand
- Sources of Demand
- Demand Patterns and Stability



Forecasting

- Purposes and Uses of the Forecast
- Principles of Forecasting
- Data Collection and Preparation Principles

Forecasting Techniques

- Qualitative Techniques
- Quantitative Techniques: Extrinsic
- Quantitative Techniques: Intrinsic
- Moving Average Forecast
- Exponential Smoothing
- Seasonal Forecast

Tracking the Forecast

- Bias
- Random Variation (Error)
- Measuring Forecast Error

Session 3 – Master Planning

Purpose and Scope of Master Planning

- Priority Planning
- Planning Horizon and Level of Detail

S&OP and Production Planning

- Sales and Operations Planning
- Production Planning

Master Scheduling and Master Production Schedule

- Purpose
- Objectives
- Inputs
- Relationship to the Production Plan
- Developing a Master Schedule
- Projected Available Balance
- Preliminary MPS
- Planning Horizon
- Time Fences and Zones
- Aggregating the Master Schedules
- Rough-Cut Capacity Planning
- Resolving Differences and Publishing the MPS

Master Scheduling and Sales

- MPS and Delivery Promises

Session 4 – Material Requirements Planning (MRP)

Material Requirements Planning Environment

- Nature of Demand
- Linkages with Other Manufacturing Planning and Control Functions



- Objectives of MRP
- MRP Process Inputs and Outputs
- Planning Software

Bill of Material

- Introduction
- Summarized Bill of Material and the Indented Bill
- Single-Level Bill of Material
- Multilevel Bill of Material
- Parent-Component Relationship
- Bill of Material: Summary
- Planning Bill
- Where-Used and Pegging Data
- Uses of the Bill of Material

Material Requirements Planning Logic

- Approach to this Section
- MRP Logic Overview
- Lead-Time Offsetting and Exploding
- Gross and Net Requirements
- Basic MRP Record
- Capacity Requirements Planning

Using and Managing the Priority Plan

- Role of MRP Software
- Order Control
- Releasing Planned Orders
- Maintaining Priorities and Replanning

Session 5 – Capacity Management and Production Activity Control

Introduction

- Manufacturing Planning and Control Hierarchy
- Transition from MRP to CRP and PAC

Capacity Management

- Phases of Capacity Management
- Definition of Capacity
- Capacity Planning Process
- Determining Capacity Available
- Rated Capacity
- Demonstrated Capacity

Capacity Requirements Planning

- Introduction
- Key Inputs
- CRP Process

Production Activity Control

- Objectives



- Functions
- Information Requirements
- Data Requirements

Scheduling

- Introduction
- Scheduling and Loading Techniques
- Bottleneck Scheduling

Implementation

- Shop Order Packet
- Order Release Process

Control

- Goals, Objectives, and Control Levers
- Priority Control
- Input / Output Control
- Flow Control

Session 6 – Aggregate Inventory Management

Introduction to Inventory

- What is Inventory?
- Aggregate and Item Inventory Management

Aggregate Inventory Management

- Inventory and the Flow of Materials
- Reasons for Carrying Inventory
- Functions of Inventory
- Inventory Objectives

Inventory Costs

- Item Costs
- Carrying Costs
- Ordering Costs
- Stockout Costs
- Capacity-Related Costs

Financial Statements and Inventory

- Balance Sheet and Income Statement Accounts
- Balance Sheet
- Income Statement
- Aggregate Inventory Management and Financial Statements
- Cash Flow Analysis
- Inventory Valuation
- Financial Inventory Performance Measures

Session 7 – Item Inventory Management

Order Quantities

- How Much to Order



- Lot-Size Decision Rules
- Economic Order Quantity (EOQ)
- Economic Order Quantity Formula
- Validity of EOQ Assumptions

Independent Demand Ordering Systems

- Order Point System
- Safety Stock
- Determining When the Order Point is Reached
- Periodic Review System

ABC Inventory Control

- ABC Principles
- ABC Classification
- ABC Process
- Sample Calculation
- Control Based on ABC Classification

Auditing Inventory Records

- Periodic Inventory Audit
- Cycle Counting

Session 8 – Purchasing and Physical Distribution

Purchasing

- Types of Purchased Items
- Purchasing Objectives

Purchasing Activities and Participants

- Purchasing Activities

Physical Distribution

- Scope and Value
- Global Distribution
- Influence of Marketing
- Interface with Production and Finance
- Other Factors: Distribution Channels
- Scope of Physical Distribution Factors

Distribution Inventory

- Purpose of Distribution Inventory
- Objectives
- Distribution Inventory Planning Systems
- Push System
- Distribution Requirements Planning (DRP)

Transportation

- Introduction
- Reverse Logistics
- Basic Transportation Modes
- Costs of Moving Goods

Warehousing

- Purpose of Warehousing
- Warehousing Process and Activities
- Stock Location Systems
- Public Versus Private Warehousing

Session 9 – Lean and Quality Systems

Product and Quality Systems

- Product and Quality Cycle
- Objectives
- Systems and Methodologies
- Principles, Practices, and Tools

Focus on the Customer

- Value of a Product to the Customer
- Quality Functional Deployment

Lean

- House of Toyota
- Why Implement Lean'?
- Waste
- Continuous Flow Production
- Pull Systems
- Work Layouts
- Process Flexibility
- Total Productive Maintenance
- Process and Continuous Improvement
- Employee Involvement and Empowerment
- Lean Tools and Techniques
- Supplier Partnerships

Total Quality Management

- Product Quality
- Quality-Related Costs
- Quality Control Tools
- Six Sigma
- Summary

Session 10 – Theory of Constraints

Introduction to Theory of Constraints

- Philosophy and Basic Principles
- Types of Constraints
- Problem-Solving Tools

General Applications

- VATI Analysis
- Drum-Buffer-Rope Planning and Scheduling
- Simplified Drum-Buffer-Rope (S-DBR)



- Throughput Accounting
- Critical-Chain Method
- Distribution