FOUNDATIONS OF SUPPLY CHAIN MANAGEMENT

Course Overview Guide

Introduction to Supply Chain Principles

Foundations of Distribution and Logistics

Foundations of Manufacturing Management

Foundations of Managing Operations

Foundations of Inventory Management

Foundations of Operations Planning

Foundations of Supply Chain Management

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

ASCM ASSOCIATION FOR SUPPLY CHAIN MANAGEMENT

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Module Selection Guide

Table of Contents

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

About Foundations of Supply Chain Management

Each module is approximately 3 hours of self-paced online study.
The objectives and lessons are provided for each module.

An appendix is available that suggests learning programs based on roles and topics.

Course Code Numbering Key:
PIM – Foundations of Inventory Management
POP – Foundations of Operations Planning
PMM – Foundations of Manufacturing Management
PDL – Foundations of Distribution and Logistics
PMO – Foundations of Managing Operations
e.g., PIM02: (PIM – Introduction to Inventory Management; 02 – course 2)

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

List of Available Modules

Contents

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

List of Available Modules

Contents

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Operations Management (PIM01, PDL01, PMO01, POP01, PMM01)

Objectives:

- Define the science and practice of operations management (OM)
- Answer the question why OM should be studied
- Describe how today's business trends are impacting OM
- Discuss the role of operations managers in the organization
- Define the value-added activities performed by OM
- Describe how OM fits into the organization
- Define the scope of OM functions
- Describe how OM has changed over the decades
- Outline the role of OM and business strategy
- Identify how OM contributes to business strategy
- Detail the ten strategic decisions of OM
- Identify career opportunities in the field of OM

Lessons:

Operations Management Foundations — Overview
What Is Operations Management?
What Trends Are Impacting Operations Management?
What Do Operations Managers Do?
What Value-Added Activities Are Performed?
How Does Operations Management Fit into the Organization?
What Is the Scope of Operations Management Functions?
Operations Management – Changing Perspectives
Operations Management and Business Strategy
Contributing Role of Operations Management to Strategy
Ten Strategic Operations Management Decisions
Operations Management Foundations — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Distribution and Logistics (PDL02)

Objectives:

- Define distribution management
- Demonstrate the components of the supply and distribution channel
- Detail a channel design tree structure
- Describe the various types of channel intermediaries
- Identify the need for distribution channels
- Detail the roles performed by the distribution function
- Define logistics management
- Describe the functions of logistics management
- Explain the components of logistics operations
- Detail the components of an effective logistics strategy
- Explore the guidelines for creating a logistics strategy
- Understand the role of the logistics function in supply chain management
- Explain the goal of sustainability
- Understand the concept and practice of reverse logistics
- Explain the waste hierarchy

Lessons:

Introduction to Distribution and Logistics — Overview
Defining Distribution Management
What Is the Supply and Distribution Channel?
The Need for Distribution Channels
Reducing Channel Transaction Complexity
Channel Design Tree Structures
Channel Intermediaries
Role of the Distribution Function
Defining Logistics Management
Logistics Management Functions
Logistics Operations
Logistics Strategy
Guidelines for Logistics Strategy
Logistics and Supply Chain Management
Reverse Logistics
Motivating Factors for Reverse Logistics
Waste Hierarchy
Benefits of Reverse Logistics
Introduction to Distribution and Logistics — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Channel Network Design (PDL03)

Objectives:

- Define the activities involved in channel network design
- Explain the reasons for supply and distribution channels
- Detail critical channel network design considerations
- Understand channel network design factors
- Outline levels of channel network dependency
- Work with the channel configuration attribute matrix
- Describe several different channel network design options
- Compare distribution network design option performance
- Deploy a framework for channel network design
- Use the micro decisions influencing distribution channel design
- Use the factor-rating method for channel network design
- Use the center-of-gravity method for channel network design
- Detail channel demand and capacity

Lessons:

Channel Network Design - Overview
Defining Channel Network Design
Reasons for Channel Networks
Critical Design Considerations
Channel Design Factors
Level of Channel Dependency
Channel Design - Manufacturing Method
Channel Configuration Attribute Matrix
Channel Configuration Attribute Matrix – Exercise
Producer Storage with Direct Delivery
Producer Storage with Drop Ship
Producer with Extended Channel Network
Aggregator with Extended Channel Network
Aggregator with e-Business Network
Omnichannel
Comparing Distribution Network Option Performance
Framework for Channel Network Design
Micro Decisions
Influencing Channel Design
Factor-Rating Method
Center of Gravity Method
Channel Demand and Capacity
Channel Network Design - Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Distribution Inventory Management (PDL04)

Objectives:

- Define the inventory management function
- Identify the functions of inventory
- Outline the strategic inventory management process
- Understand the characteristics of inventory in the distribution channel
- Trace channel inventory and demand flows
- Identify the components of inventory replenishment
- Describe replenishment ordering techniques
- Understand the order point model
- Calculate order point safety stock
- Determine the replenishment order quantity
- Identify the components of inventory carrying cost
- Calculate the economic order quantity (EOQ)
- Manage with minimum and maximum ordering
- Detail the replenishment planning process

Lessons:

Distribution Inventory Management - Overview
Defining Inventory Management
Functions of Inventory
Distribution Inventory Management Process
Characteristics of Inventory in the Supply Chain
Supply Chain Inventory and Demand Flows
Inventory Replenishment Components
Ordering Techniques - When to Order
Basic Order Point Model and Order Point Trigger
Demand Variation and Safety Stock
Calculating Safety Stock
Determining Order Quantity
Order and Inventory Carrying Cost Components
Determining the Economic Order Quantity (EOQ) - Trial and Error Method
EOQ Calculation
Maximum and Minimum Ordering
Replenishment Planning Process
The Period Review System - Review Interval and Uses
The Periodic Review System - Mechanics and Calculation
Distribution Inventory Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Distribution Requirements Planning (PDL05)

Objectives:

- Describe distribution channel dependencies
- Detail push system functions
- Detail pull system functions
- Decide what to choose: reorder points or DRP?
- Define distribution requirements planning (DRP)
- Explore time phasing
- Understand the DRP planning grid
- Calculate the projected available balance (PAB) and the DRP grid
- Calculate net requirements and the DRP grid
- Review the DRP planned order generation
- Perform PAB and net requirements recalculations
- Explore DRP and the bill of distribution (BOD)
- Outline the DRP planning process
- Perform a full DRP calculation

Lessons:

Distribution Requirements Planning — Overview
Distribution Channel Dependencies
Push System Functions
Push System Allocation – Example
Pull System Functions
What to Choose: Order Points or DRP
Defining Distribution Requirements Planning (DRP)
Time Phasing – The Heart of DRP
Introduction to the DRP Grid
PAB and the Net Requirements Grid
DRP Planned Order Generation
PAB and Net Requirements Recalculation
Using Safety Stock in DRP
DRP and the Bill of Distribution
DRP Planning Process
DRP Example
Distribution Requirements Planning — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Warehouse Management (PDL07)

Objectives:

- Define warehouse management
- Detail warehouse functions
- Describe the different types of warehouses – private, public, contract, and in transit
- Explore the basic objectives of warehousing
- Review warehousing strategic decision components
- Explain the use of third-party logistics (3PL) service providers in warehousing strategy
- Explain the use of fourth-party logistics (4PL) service providers in warehousing strategy
- Discuss the importance of warehouse work standards
- Detail the warehouse operational management process
- Describe the warehouse receiving flow
- Examine the functions of warehouse stocking activities
- Illustrate the components of successful warehouse inventory transaction management
- Outline the order picking and shipping flow
- Emphasize the importance of warehouse performance measurements

Lessons:

Warehouse Management — Overview
Defining Warehouse Management
Warehouse Functions
Product Storage
Order Management
Information Transfer
Types of Warehousing
Basic Operations of Warehousing
Strategic Decision Components
Third and Fourth-Party Logistics (3PL/4PL)
Warehouse Management Process
Importance of Warehouse Standards
Warehouse Work Standards Exercise
Receiving Flow
Warehouse Stocking Functions
Three Ps of Inventory Control
Transaction Management
Order Picking Options
Order Shipment Flow
Warehouse Performance
Warehouse Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Packaging and Materials Handling (PDL08)

Objectives:

- Define warehouse design and layout objectives
- Detail warehouse size and capacity
- Describe basic warehouse layouts
- Explain warehouse layout development
- Detail warehouse design layout principles
- List the key principles of materials handling
- Classify the types of storage systems
- Outline large-item or large-volume product storage
- Review small-item or low-volume product storage
- Review automated storage systems
- Discuss stocking inventory in warehouse locations
- Describe dock materials handling equipment
- Describe mobile materials handling equipment
- Define the role of packaging and unitization
- List the key drivers of warehouse automation
- Detail the components of warehouse automation

Lessons:

Packaging and Materials Handling — Overview
Warehouse Design and Layout Objectives
Warehouse Size and Capacity
Basic Warehouse Layouts
Warehouse Layout Development
Warehouse Design and Layout Principles
Principles of Materials Handling
Types of Storage Systems
Large-Item or Large-Volume Storage
Small-Item or Small-Volume Product Storage
Automated Storage Systems
Stocking Inventory in Warehouse Locations
Dock Equipment
Mobile Materials Handling Equipment
Role of Packaging
Unitization
Unitization Principles and Examples
Warehouse Automation – Key Drivers
Warehouse Automation Components
Warehouse Management System (WMS)
Packaging and Materials Handling — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Transportation Management (PDL09)

Objectives:

- Define transportation management
- Explain the fundamental principles of transportation
- Detail the principles of transportation operations
- Describe transportation participants
- Outline the load transport aspects of transportation services
- Outline the product storage aspects of transportation services
- Explain the relationship of transportation to other business functions
- Classify the modes of transportation: motor, railroad, air, water, pipeline, and intermodal
- Describe the types of transportation carriers
- Define the functions and impact on transportation of third-party logistics (3PL) and fourth- party logistics (4PL) service providers
- Outline the various forms of logistics outsourcing models
- Detail the challenges facing today's transportation industry

Lessons:

Transportation Management — Overview
Defining Transportation Management
Fundamental Principles of Transportation
Principles of Transportation Operations
Transportation Participants
Transportation Services – Load Transport
Transportation Services – Product Storage
Relationship of Transportation to Other Business Functions
Motor Transportation
Railroad Transportation
Air Transportation
Water and Pipeline Transportation
Intermodal Transportation
Types of Transportation Carriers
Third-Party Logistics (3PL) – Functions and Transportation
Logistics Outsourcing Models
Transportation Challenges
Transportation Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Transportation Operations (PDL10)

Objectives:

- Describe the principles of transportation operations
- Review the role of transportation administration
- Detail the types of transportation risk
- Outline the components of the transportation management process
- Classify the elements of transportation cost
- Review the detailed components of transportation cost
- Understand transportation rates and pricing
- Explain domestic transportation terms of sale
- Detail the steps in transportation mode selection
- Detail the steps in transportation carrier selection
- Review transportation routing and scheduling functions
- Review transportation documentation and post-shipment processing
- Outline transportation performance measurement
- Define transportation management technologies

Lessons:

Transportation Operations – Overview
Transportation Operations Principles
Role of Transportation Administration
Types of Transportation Risk
Transportation Management Process
Transportation Cost
Detailed Transportation Cost Components
Transportation Rates and Pricing
Terms of Sale (United States)
Transportation Mode Selection
Transportation Carrier Selection
Transportation Routing and Scheduling
Transportation Routing Problem and Solution
Documentation and Post-Shipment Processing
Transportation Performance Measurement
Transportation Performance Scorecard
Transportation Management System
Transportation Operations — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Inventory Management (PIM02)

Objectives:

- Define inventory management
- Define inventory management objectives
- Describe what inventory management does
- Describe the different classes of inventory
- Identify the different levels of inventory management
- Review the characteristics of inventory in the supply chain
- Detail the strategic inventory management process
- Balance demand and supply objectives
- Contrast the conflicting objectives of inventory management among marketing/sales, finance, and operations
- Understand inventory trade-off decisions
- Describe inventory and demand flows
- Define supply chain inventory and demand flows
- Describe inventory status
- Understand how inventory provides value
- Determine whether inventory is an asset or a liability
- Assess the financial impact of inventory management

Lessons:

Introduction to Inventory Management - Overview
Defining Inventory Management
Why Does Inventory Have to Be Managed?
Inventory Management Objectives
What Does Inventory Management Do?
Classes of Inventory
Levels of Inventory Management
Characteristics of Inventory in the Supply Chain
Strategic Inventory Management Process
Strategic Inventory Management Decisions
Balancing Demand and Supply Objectives
Inventory – Conflicting Objectives
Inventory Trade-Off Decisions
Inventory and Demand Flows
Supply Chain Inventory and Demand Flows
Inventory Status
Item Numbering
How Does Inventory Provide Value?
Inventory – Asset or Liability?
Return on Assets
Financial Impact of Inventory
Introduction to Inventory Management - Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Purpose and Function of Inventory (PIM03)

Objectives:

- Define the purpose of inventory
- Discuss the five functions of inventory
- Describe the purpose of decoupling inventories
- Detail the components of inventory decision making
- Review the role of cycle, safety, and seasonal inventories
- Define the various costs associated with inventory
- Determine an item's unit cost
- Detail the sources of inventory ordering costs
- Define the components of inventory carrying cost
- Explore the effects of stock-out and capacity-related costs
- Review the components of transportation and distribution costs
- Discuss how excess and obsolete inventories affect inventory management
- Work with the five basic methods of inventory valuation
- Review inventory management performance measurements
- Review the concept of cost-benefit trade-off analysis

Lessons:

Purpose and Function of Inventory - Overview
Learning Objectives
Purpose of Inventory
Functions of Inventory
Purpose of Decoupling/Buffering
Inventories How Much Inventory Is Needed?
Components of Inventory Management
Defining Cycle Inventory
Defining Safety Inventory
Defining Seasonal
Inventory Inventory Costs
Unit Costs Ordering Costs
Inventory Carrying Cost Components
Total Inventory Carrying Cost Calculation
Stockout Costs
Capacity-Related Costs
Transportation Cost
Surplus/Obsolete Inventory
Inventory Valuation
Measuring Inventory Performance
Cost Benefit Trade-Off Analysis
Purpose and Function of Inventory — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Inventory Replenishment Management (PIM04)

Objectives:

- Understand the inventory demand driver
- Define inventory replenishment management
- Detail the components of inventory replenishment management
- Describe the inventory replenishment review period
- Detail the principles of inventory replenishment
- Outline the inventory replenishment ordering techniques
- Describe the visual review technique
- Describe the two-bin system technique
- Describe the periodic review system technique
- Describe the order point inventory ordering system
- Calculate inventory safety stock
- Calculate the standard deviation
- Determine an order quantity
- Determine inventory ordering and carrying cost components
- Determine the economic order quantity (EOQ)
- Review the inventory replenishment planning process

Lessons:

Inventory Replenishment Management - Overview
Understanding the Demand Driver
Defining Inventory Replenishment Management
Components of Inventory Replenishment Management
Replenishment Review Period
Continuous Versus Periodic Review
Inventory Replenishment Principles
Replenishment Ordering Techniques
Visual Review Technique
Two-Bin System Technique
Periodic Review System Technique
Periodic Review System – Calculation
Uses of the Periodic Review System
Order Point Technique
Calculating the Order Point
Order Point – Potential of Demand Variation and Safety Stock
Calculating the Safety Stock – Part 1
Calculating the Standard Deviation – Part 2
Calculating the Safety Stock – Part 3
Determining the Order Quantity
Ordering Costs Carrying Costs
Determining the Economic Order Quantity (EOQ)
EOQ Calculation
Replenishment Planning Process
Inventory Replenishment Management - Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Additional Inventory Replenishment Techniques and Inventory Performance (PIM05)

Objectives:

- Work with several additional inventory replenishment techniques
- Counter uncertainty in supplier delivery times
- Understand and perform replenishment planning using time-phased order point (TPOP)
- Define replenishment quantities by item class
- Understand the impact of inventory on financial statements
- Calculate inventory values, turns, and ratios
- Define inventory performance management objectives
- Understand and work with ABC inventory control
- Define inventory accuracy tools
- Perform effective transaction management
- Work with periodic and perpetual inventory systems
- Use the year-end periodic physical inventory
- Understand and establish a cycle counting program
- Identify current inventory management technologies

Lessons:

Additional Inventory Replenishment Techniques and Inventory Performance - Overview Additional Inventory Replenishment Techniques
Supplier Lead Time Uncertainty
Time-Phased Order Point (TPOP)
Time-Phased Order Point Example
Time-Phased Order Point Exercise
Advantages of Using the TPOP
Replenishment by Item Class
Inventory Performance Management
Financial Statements and Inventory
Inventory Values, Turns, and Ratios Inventory Performance
ABC Inventory Control
ABC Classification Example
ABC Classification Exercise
Impact of Inventory Inaccuracy and Inventory Accuracy Tools
3 P's of Inventory Control
Transaction Management
Periodic and Perpetual Inventory Systems
Periodic (Physical) Inventory
Cycle Counting Introduction
Cycle Counting Process Steps
Cycle Counting Exercise
Periodic Physical Inventory vs. Cycle Counting
Inventory Management Technology Tools
Additional Inventory Replenishment Techniques and Inventory Performance — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Lean Inventory – Theory and Practice (PIM07)

Objectives:

- Define the concepts of just in time (JIT) and lean and how they apply to the management of inventories
- Describe why implementing lean is important
- Detail the structure of lean
- Describe in detail the three general areas of waste
- Discuss the eight deadly wastes
- Differentiate value-added work from waste
- Manage inventory effectively in a lean environment
- Explore the lean inventory flow analogy
- Describe the impact of inventory reduction
- Detail lean pull-system basics
- Calculate the number and work with kanbans
- Review the calculation of production, move, and supplier kanbans
- Detail the five S system
- Describe kaizen improvement
- Discuss the benefits of employee involvement and empowerment
- Discuss the benefits of lean management

Lessons:

Lean Inventory – Theory and Practice – Overview
Defining Just-in-Time (JIT)
Defining Lean
Why Implement Lean?
The Structure of Lean
Three General Areas of Waste
Eight Deadly Wastes
Differentiate Work from Waste
Managing Inventory in a Lean Environment
Inventory Flow Analogy
Impact of Inventory Reduction
The Pull System – Basic Concepts
Kanban Overview
Calculating Kanban Cards – Production
Calculating Kanban Cards – Move
One-Card Kanban System Example
Calculating Kanban Cards – Supplier
Five Ss and Kaizen Improvement
Employee Involvement and Empowerment
Lean Benefits
Lean Inventory – Theory and Practice — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Purchasing and Procurement (PIM08)

Objectives:

- Define and compare purchasing to procurement
- Describe the types of materials purchased
- List at least two objectives for tactical buying
- Compare tactical buying to strategic sourcing
- Compare centralized and decentralized purchasing
- Compare the roles of buyer/planner and buyer
- List seven steps in the purchasing cycle
- Quantify the financial impact of purchasing
- List at least two objectives for procurement
- Compare the commodity category versus the strategic category of classifying materials and services

Lessons:

Introduction to Purchasing and Procurement - Overview
Purchasing Basics
Key Purchasing Concepts
Purchasing to Procurement
Purchasing as Integral to Supply Chain Management
Materials and Supplies Purchased
Services Purchased
Purchasing Objectives
Purchasing Functions
Tactical Buying Tactical and Strategic
Tactical Buying versus Strategic Sourcing
Organizational Design Considerations
Centralized versus Decentralized
Various Roles within Purchasing
The Seven Steps in the Purchasing Cycle
Purchasing Cycle Step 1: Requisition and Specification
Purchasing Cycle Step 2: Sourcing
Purchasing Cycle Step 3: Pricing Information
Purchasing Cycle Steps 4–7: Agreement, Follow Up, Acceptance, and Approval
Procurement Objectives
Anatomy of Procurement Strategy
Procurement Strategy Step 1: Strategic Analysis
Procurement Strategy Step 2: Organizational Structure
Procurement Strategy Step 3: Inventory Strategy
Procurement Strategy Step 4: Supplier Relations
Procurement Strategy Step 5: Technology Enablers
Procurement Strategy Step 6: Performance and Continuous Improvement
Introduction to Purchasing and Procurement — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Sourcing Strategies (PIM09)

Objectives:

- List at least two additional activities in strategic sourcing compared to traditional sourcing
- Name the five steps in the sourcing process and differentiate what activities in each step is considered strategic sourcing
- Develop a cost-avoidance analysis
- Distinguish between different types of supplier relationships
- Define supplier relationship management (SRM)

Lessons:

Sourcing Strategies - Overview
Defining Sourcing
Defining Strategic Sourcing
Strategic Sourcing Objectives
Strategic Sourcing Activities
Sourcing Process Steps
Make-or-Buy Decision
Cost Avoidance Analysis
Spend Analysis
Spend Analysis Documents
Supplier Relationships
Sourcing Alternatives
Supplier Scoring and Assessment
Supplier Selection Comparison
Categories of Suppliers
Overview of Pricing
Break-Even Analysis
Discounting
Price Quantity Discount
Price Quantity Discount Exercise
Negotiation Objectives
Design Collaboration
Advantages of Collaborative Supplier Involvement
Supplier Relationship Management (SRM)
Traditional Purchasing versus SRM
Benefits of SRM
Implementing SRM Strategy
Sourcing Strategies — Summary and Review

Purchase Order Management (PIM10)

Objectives:

- List the five steps in the purchase order flow
- List the two steps in the purchasing cycle that are not included in the purchase order flow
- Compare static to dynamic database files
- Calculate material requirements planning (MRP) using inventory data provided
- Define vendor-managed inventory (VMI) process
- List one step in the purchase order flow that is not included in the procure -to-pay cycle
- List the five components of a supplier relationship management (SRM) system.

Lessons:

Purchase Order Management - Overview
Purchase Order Flow
Purchasing Policies
Purchase Order Flow: Step 1: Generate Purchase Requisition
Database Maintenance - Static and Dynamic Database
Files Material Requirements Planning
MRP Purchase Order Actions
Purchasing Kanban and Kanban Card Calculation
Supplier Kanban Example
Order Point and Periodic Review
Budgeted versus Unexpected Requirements
Purchase Order Flow Step 2: Issue Purchase Order - Order Approaches
Vendor-Managed Inventory (VMI)
Purchasing Process Methods
Timing of Purchases
Transportation Mode Decision
Purchase Order Flow: Step 3: Follow Up - Status Reporting
Purchase Order Flow: Step 4: Receiving and Order Close-Out
Purchase Order Flow: Step 5: Approve Payment
Purchasing Performance Management
Global Sourcing Overview
Global Sourcing Advantages/Disadvantages Exercise
Effect of Technology and the Internet on Purchasing
Internet-Enabled Purchasing Components
Supplier Relationship Management (SRM)
e-SRM Services
e-SRM Processing
Portals and Auctions
Purchase Order Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Manufacturing Management (PMM02)

Objectives:

- Define manufacturing management
- Review the components of manufacturing management
- Define manufacturing strategy
- Review product manufacturing environments
- Understand the impact of variety, volume, and lead time
- Explore product manufacturing positioning
- Detail manufacturing process choices
- Explore manufacturing process choice positioning
- Review process layout options
- Explore process layout positioning
- Detail steps for developing a manufacturing strategy
- Outline manufacturing structural and infrastructural choices
- Explore batch versus flow production
- Explore push versus pull manufacturing techniques

Lessons:

Introduction to Manufacturing Management — Overview
Defining Manufacturing
Defining Manufacturing Strategy
Product Manufacturing Environments
Variety, Volume, and Lead Time
The Four Vs of Product Strategy
Product Manufacturing Positioning
Variations in Approach
Manufacturing Process Choices
Processing Tasks and Flows
Process Choice Positioning
Process Layout Options
Process Layout Positioning
Process Selection – Unit Costs
Process Selection – Least Cost
Manufacturing Strategy Steps
Forms of Manufacturing Strategy
Manufacturing Strategy and Competitive Advantage
Manufacturing Structural Choices
Manufacturing Infrastructural Choices
Batch Versus Flow Production
Push Model
Pull Model
Planning Horizon and Application for Pull versus Push
Introduction to Manufacturing Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Manufacturing Product Structures (PMM03)

Objectives:

- Define the product structure
- Define the bill of material
- Define the process routing
- Work with the product structure management process
- Define bill of material uses
- Determine basic bill of material formats
- Achieve bill of material accuracy
- Define plant work centers
- Calculate with work center utilization and efficiency
- Determine processing time elements
- Establish the process routing
- Discuss manufacturing costing
- Understand the product structure cost development
- Perform a standard cost calculation.

Lessons:

Manufacturing Product Structures - Overview
Product Structure Definitions
One Product Structure
Product Structure Management Process
Managing Bills of Materials
The Use of Bills of Material in Service Industries
Basic Bill of Material Formats
Achieving Bill of Materials Accuracy
Bill of Material Exercise
Work Centers
Work Center Utilization and Efficiency
Processing Time Elements
Establishing the Routing
Routing Example
Routing Exercise
Importance of Manufacturing Costing
Product Costing Components and Uses
Product Structure Cost Development
Product Costing Example
Product Costing Exercise
Manufacturing Product Structures — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Basics of Material Requirements Planning (PMM04)

Objectives:

- Understand the requirements to plan and make a product
- Define the critical inventory question
- Define the two basic order methods: stock replenishment and material requirements planning (MRP)
- Understand the difference between independent and dependent demand
- Discuss the problems with using stock replenishment techniques
- Compare stock replenishment and MRP techniques
- Understand the concept of time phasing
- Define MRP
- Map the flow of MRP
- Detail MRP objectives and functions
- Work with MRP inputs and outputs
- Use bills of material, lead-time offsetting, and exploding
- Work with MRP planning grid calculations

Lessons:

Basics of Material Requirements Planning - Overview
How Do You Make a Product?
Critical Inventory Questions
Inventory Management Methods
Independent Versus Dependent Demand
Problems with Statistical Stock Replenishment
MRP Compared to Statistical Replenishment
Time Phasing - the Heart of MRP
Material Requirements Planning - Key Concepts
MRP in the MPC Flow
MRP Flow
MRP Objectives and Functions
MRP Process Inputs and Outputs
Using the Bill of Material Structure for MRP
Lead-Time Offsetting and Exploding
Introduction to the MRP Grid
PAB and the MRP Grid
Net Requirements and the MRP Grid
Net Requirements and the MRP Grid Calculations
MRP Order Policies
MRP Order Generation
MRP Planned Order Generation Examples
PAB and Net Requirements Recalculation
MRP Grid Exercise
Basics of Material Requirements Planning — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Managing with MRP (PMM05)

Objectives:

- Perform the MRP BOM explosion process
- Define the role of the MRP planner
- Understand the causes of MRP change
- Detail the MRP planning process
- Define the prerequisites for MRP
- Work with the MRP generation
- Understand the types of MRP supply orders
- Detail MRP system action messages
- Perform MRP action message activities
- Define MRP performance policies and methods
- Identify MRP problem indicators
- Develop MRP performance measurements

Lessons:

Managing with MRP - Overview
Bill of Material in MRP
Gross and Net Requirements - Explosion
MRP Explosion
Role of the Material Planner
Causes of MRP Change
MRP Management Process
Prerequisites for MRP
MRP Generation
MRP Generation Frequency
Types of MRP Supply Orders
Action Messages
MRP Action Message Examples
MRP Performance
Policies and Methods
MRP Problem Indicators
Using MRP to Identify and Resolve Problems
MRP Performance Measurements
Managing with MRP — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Capacity Planning and Management (PMM07)

Objectives:

- Define capacity management
- Detail the elements of capacity management
- Understand the relationship between planning and controlling priorities and capacities
- Understand the four levels of capacity management
- Define capacity requirements planning (CRP)
- Understand the flexibility of capacity and scheduling
- List the objectives of capacity planning
- Detail the inputs into capacity management
- Describe the steps to effectively managing the capacity process
- Detail the components of capacity management
- Calculate work center capacity
- Calculate work center load
- Schedule work center operations
- Manage the load versus capacity report
- Manage excesses and shortages in capacity

Lessons:

Capacity Planning and Management — Overview
Definitions of Capacity
Capacity Elements
Priorities and Capacities
Capacity Management Levels
CRP Definition
CRP Process – Closing the Loop
Flexibility of Capacity and Scheduling
Capacity Planning Objectives
Inputs into Capacity Management
Managing the Capacity Process
Capacity Components
Calculating Work Center Capacity
Infinite and Finite Loading
Load Profile
Load Versus Capacity Report
Managing Excesses and Shortages in Capacity
Capacity Planning and Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Production Activity Control (PMM08)

Objectives:

- Define production activity control (PAC)
- Detail the goals of PAC
- Detail the characteristics of PAC systems
- Understand the linkage between PAC and the planning system
- Work with PAC database files
- Work with the major activities of the PAC system
- Detail the production order release process
- Detail PAC scheduling activities
- Explore PAC scheduling priority rules
- Detail PAC data collection and monitoring activities
- Understand the purpose of PAC control and feedback activities
- Detail order disposition and closeout activities

Lessons:

Production Activity Control — Overview
Defining Production Activity Control
Goals of Production Activity Control
Characteristics of PAC Systems
PAC Functions Detail
PAC and the Planning System
PAC Data
PAC System Prerequisites
Major PAC Activities
Order Release Process
Shop Packet
Scheduling Operations
Backward Scheduling Example
Backward Scheduling – Graph Exercise
Detailed Scheduling
Dispatching Priority Rules
Data Collection and Monitoring
Purposes of PAC Control and Feedback
Short-Term Corrective Actions
Order Disposition and Closeout
Characteristics of Good PAC Performance Measurements
PAC Activities – A Summary
Production Activity Control — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Advanced Scheduling (PMM09)

Objectives:

- Detail the two types of scheduling
- Define MRP-push system and lean-pull system scheduling
- Define scheduling components
- Work with MRP-based scheduling inputs
- Manage order schedules
- Work with scheduling functions
- Understand planner order release and scheduling
- Use the dispatch list
- Detail the steps in the rescheduling process
- Resolve schedule conflicts
- Work with order status and work center load reports
- Use operation overlapping and lot-splitting techniques
- Schedule bottleneck work centers
- Manage scheduling with input/output reporting

Lessons:

Advanced Scheduling — Overview
Types of Scheduling
Push System Scheduling
Pull System Scheduling
Push vs Pull Scheduling Factors
Scheduling Definition
MRP or Push-Based Scheduling Inputs
Managing Order Schedules
Scheduling Functions
Planned Order Release and Scheduling
Order Release – Loading and Sequencing
Order Dispatching
Steps in the Rescheduling Process
Resolving Schedule Conflicts
Order Status Report
Work Center Load Profile
Operation Overlapping
Lot Splitting
Scheduling Bottleneck Work Centers
Schedule Performance
Input/Output Control
Input/Output Control Exercise
Advanced Scheduling — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Lean Production Management (PMM10)

Objectives:

- Define lean and just-in-time (JIT) concepts and practices
- Trace the evolution of the lean concept
- Detail the advantages of implementing lean
- Understand the structure of lean production
- Define the concept of process waste
- Use lean to standardize production processes
- Explore the elements of "lean thinking"
- Define employee involvement and empowerment
- Explore the components of lean production concepts and practices
- Work with lean plant layout design
- Understand the basics of the lean production pull system
- Define Kanban production techniques
- Execute a two-card Kanban production flow
- Understand the connection between MRP and lean scheduling techniques
- Use lean to develop the "customer-focused" organization

Lessons:

Lean Production Management — Overview
Defining Lean
Lean Evolution
Defining Just-In-time
Comparing JIT to Lean
Why Implement Lean?
The Structure of Lean
Removal of Waste
Differentiate Work from Waste
Standardization and the Five Ss
Lean Thinking
Employee Involvement and Empowerment
Elements and Goals of Lean Production
Lean Plan Layout Design
The Pull System – Basic Concepts
Kanban Overview
Calculating Kanban Cards
Two-Card Kanban Process Flow
MRP Planning and Lean Scheduling
Production Leveling
Heijunka Scheduling
Takt Time Scheduling
Customer Focus
Lean Production Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Planning (POP02)

Objectives:

- Understand how to create a business strategy
- Understand the basics of business planning
- Describe the dynamics of business planning
- Understand the different levels of planning that occurs with a business
- Understand the planning and control process model
- Describe the features of a business plan
- Understand how the different levels of business planning work with each other
- Work with a business planning process model
- Develop a business mission/vision
- Perform investment planning
- Perform profit planning
- Perform asset and capital planning
- Describe the components of a planning architecture model

Lessons:

Introduction to Planning — Overview
Defining Planning
Planning Levels
The Planning and Control Environment
Planning, Organization and Control
The Planning Process – Shewhart Cycle
The Closed-Loop Planning Cycle
The Principles of Planning
Strategic Questions
Growing the Business
Boundaries of Enterprise Strategies
Strategic Framework
Defining Business Planning
Business Planning Process
Enterprise Mission/Vision
Competitive Values
Investment Planning
Profit Planning Asset
Planning Capital
Planning
Planning Architecture in the MPC System
Planning Review
Introduction to Planning — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Forecasting (POP03)

Objectives:

- Define the forecasting function
- Work with the three levels of forecasting
- Define demand
- Explore the universal principles of forecast management
- Understand forecast design and parameter issues
- Detail the forecasting process
- Detail the benefits of forecast accuracy
- Describe general forecasting techniques and data sources
- Review qualitative, quantitative, and causal forecasting techniques
- Discuss why forecasts fail

Lessons:

Forecasting — Overview
Defining Forecasting
Three Levels of Forecasting
What Is Demand?
Characteristics of Demand
Universal Principles of Forecasting
Forecast Demand Plan Design Challenges
The Forecasting Process - Demand Plan Inputs
Forecast Accuracy
Forecasting Techniques and Data Sources
Forecasting Data Sources
Forecasting Categories
Qualitative Forecasting Overview
Qualitative Forecasting Models
Quantitative Intrinsic Techniques
Averages
Exponential Smoothing
Time Series Decomposition
Quantitative Causal Techniques
Why Forecasts Fail
Forecasting — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Demand Management (POP04)

Objectives:

- Define demand management
- Review the components of demand management
- Place demand management in the MPC system
- Evaluate forecast performance
- Use the measures of forecast error
- Calculate forecast error
- Determine the MAD and standard deviation of forecast error
- Calculate forecast bias and tracking errors
- Define customer relationship management (CRM)
- Work with customer order management
- Define customer service management
- Explore demand management technology tools
- Define demand management performance

Lessons:

Demand Management — Overview
Defining Demand Management
Components of Demand Management
Demand Management in the MPC System
Evaluating Forecast Performance
Measures of Forecast Error
Calculating Forecast Error
Normal Distribution of Forecast Error
Limits of Forecasting
Defining CRM
Impact of CRM on the Organization
Order Management
Order Management Process
Order Promising
Customer Service Management
Nine Steps to Effective Service Management
Information Technologies
Performance Measurement
Demand Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Sales and Operations Planning (POP05)

Objectives:

- Define sales and operations planning (S&OP)
- Explain how S&OP fits in the MPC system
- Outline the detailed S&OP process
- Determine product families
- Identify S&OP process inputs
- Identify S&OP historical data
- Compile a summary of S&OP outputs
- Understand the S&OP grid
- Work with the make-to-stock (MTS) S&OP grid
- Work with the make-to-order (MTO) S&OP grid
- Implement the monthly S&OP planning meeting
- Describe the benefits of S&OP

Lessons:

Sales and Operations Planning — Overview
Defining Sales and Operations Management
Organizations with Separate and Integrated Business Plans
Process Linkage and System Integration
S&OP — A Balancing Act
S&OP in the MPC System
S&OP Process Inputs
The S&OP Process
S&OP Roles and Responsibilities
Product Families
Classifying Product Families
S&OP Data Inputs
S&OP Historical Data
Summary of S&OP Outputs
Understanding the MTS S&OP Grid
Understanding the MTO S&OP Grid
S&OP Financial Cost Grids
Monthly S&OP Planning Process
Weekly Demand Review
Timing of the S&OP Cycle
Demand Planning
Benefits of S&OP
Sales and Operations Planning — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Aggregate Operations Planning (POP07)

Objectives:

- Manage the detailed S&OP process
- Explain the sales and marketing planning processes
- Work with product life cycles and delivery network structures
- Calculate an S&OP product family forecast disaggregation
- Discuss the production planning process
- Determine production planning strategies
- Calculate the financial impact of the production plan
- Define resource requirements planning
- Develop resource capacity and production family load profiles
- Generate a resource requirements plan
- Discuss the inventory planning process
- Calculate a production plan using an inventory target
- Develop the distribution plan
- Determine transportation, warehouse, and equipment and labor requirements

Lessons:

Aggregate Operations Planning — Overview
S&OP Planning — Review
Marketing and Sales Planning — Key Questions
Marketing and Sales Planning Process
Product Life Cycle Dynamics
Product Volume/Profit Analysis
Forecast Disaggregation
Production Plan — Operations Questions
Production Planning Process
Production Strategies
Level Production Strategy
Chase Production Strategy
Financial Decisions — Total Costs
Defining Resource Planning
Capacity Planning Processes
Resource Planning Process
Resource and Load Profiles
Resource Planning Example
Inventory Planning Process
Inventory Turnover
Distribution Planning Process
Distribution Channel Structure
Warehouse Plan
Aggregate Operations Planning — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Master Scheduling Foundations (POP08)

Objectives:

- Define master scheduling principles and concepts
- Explain the role of master scheduling in the manufacturing planning and control (MPC) system
- Detail the objectives of master scheduling
- Discuss master scheduling and the manufacturing planning and scheduling environment
- Work with master scheduling approaches
- Detail the inputs to master scheduling
- Review the interaction between sales and operations planning (S&OP) and master scheduling
- Establish planning bills of material as part of the MPS
- Outline the master schedule grid
- Work with the master schedule grid and demand management
- Calculate the projected available balance (PAB) in the master schedule grid
- Calculate net requirements in the master schedule grid
- Generate MPS orders
- Calculate available-to-promise in the master schedule grid
- Work with MPS time fences and zones

Lessons:

Master Scheduling Foundations Overview
Defining Master Scheduling
Master Scheduling in the MPC System
Master Scheduling Process Flow
What the Master Schedule Is NOT
Marketplace/Customer Expectations
Manufacturing Requirements
Scheduling Approaches
Theory of Constraints
Inputs into the Master Schedule
S&OP and the Master Schedule
Product Family Planning Bill of Material
Planning BOM Exercise
Introduction to the MPS Grid
Understanding Master Schedule Demand
Demand and the Master Schedule Grid
PAB and the Master Schedule Grid
Net Requirements and MPS Planned Orders
MPS Planned Order Generation
PAB and Net Requirements Recalculation
MPS Generation Order Policies
ATP and the Master Schedule Grid
Master Schedule Grid Time Fences and Zones
Master Scheduling Foundations — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Master Scheduling Processes (POP09)

Objectives:

- Define the role of the master scheduler
- Review the causes of master schedule change
- Work with the master scheduling management process
- Work with the forecast
- Manage order requests
- Explain the use of time fences
- Describe types of master schedule orders
- Work with action messages
- Work with safety stock
- Discuss capacity planning methods
- Define the rough-cut capacity planning process
- Calculate the rough-cut capacity plan
- Detail the performance elements of a successful master schedule

Lessons:

Master Scheduling Processes — Overview
Role of the Master Scheduler
Causes of Master Schedule Change
Master Schedule Management Process
Master Schedule Generation
Managing the Forecast
Managing Order Requirements
Time Fence Review
Types of Master Schedule Orders
Action Messages
Safety Stock and the Master Schedule
Capacity Planning — Levels, Horizons and Methods
RCCP Calculation
Overload and Underload Solutions
Master Schedule Rebalancing
MPS Process — Closing the Loop
Performance Policies and Methods
Master Schedule Problem Indicators
MPS Performance Measurements
Master Scheduling Processes — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Operations Systems (POP10)

Objectives:

- Explore the importance of information technology
- Detail the role of information technology
- Analyze the technology strategic triangle
- Explore technology organizational framework assumptions
- Outline operations planning system assumptions
- Explore how system technology benefits planning
- Define enterprise resources planning (ERP)
- Trace the evolution of ERP systems
- Analyze the components of today's ERP system
- Compare ERP and "best of breed" software solutions
- Detail the requirements for ERP and system thinking
- Outline the ERP organizational maturity model
- Review ERP and enterprise competitive development
- Detail the benefits of applying ERP systems to the management of the business

Lessons:

Operations Systems — Overview
Technology Terms Matching Exercise
Importance of Information Technology
Role of Information Technology
Strategic Technology
Triangle Organizational Framework Assumptions
Operations Planning Systems Assumptions
Purpose of Information Systems
How Systems Technology Benefits Planning
What Is an ERP System?
ERP as a Business Framework
ERP versus Best-of-Breed Systems
Process Design, Information Technology, and Systems Thinking
Enterprise Business System Components
Enterprise System Maturity Model
Benefits Summary
Operations Systems — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Introduction to Process and Operations (PMO02)

Objectives:

- Define organizations, processes, and operations
- Define a process
- Detail the flow of a process
- Understand the difference between products and services
- Define an operation
- Determine the difference between processes and operations
- Discuss the relationship of processes and the customer
- Review the place of different types of customers in the supply chain
- Identify customer wants and needs
- Match customer wants and needs with process solutions
- Detail the scope of process management
- Understand the organization as a network of functional processes
- Map the process-driven organization
- Explain team-based process networking
- Describe the strategic impact of processes and operations
- Outline and work with the four Vs of processes

Lessons:

Introduction to Process and Operations — Overview
Overview of Process and Operations
Defining Process
Process Diagram
Products versus Services
Defining Operations
Operations and Work Elements
Process Operations Mapping
Defining the Customer
Customers in the Supply Chain
Voice of the Customer
Scope of Process Management
The Organization as a Network of Functional Processes
The Process-Driven Organization
Team-Based Process Networking
Strategic Impact of Processes and Operations
The Four Vs of Processes
The Four Processes Vs — Typology
Introduction to Process and Operations — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Project Management (PMO03)

Objectives:

- Define project management
- List the components of a project
- Describe the four objectives of a project
- Detail project goals dynamics
- Contrast managing ongoing operations and project management
- Outline the project management system
- Define the phases of the project management life cycle
- Review the project positioning phase
- Review the initiation and planning phase
- Review project human resource management, roles, and responsibilities
- Construct a project schedule
- Review the execution and control phase
- Review the completion phase
- Understand Gantt charts
- Plan projects with CPM and PERT
- Work with CPM and PERT scheduling examples

Lessons:

Project Management — Overview
Defining Project Management
Components of a Project
Four Project Objectives
Project Goals Dynamics
Dynamics of Managing Ongoing Operations and Project Management
Project Management Activities
Project Management Phases and Life Cycle
Project Positioning Phase
Initiation and Planning Phase
Project Human Resource Management, Roles, and Responsibilities
Project Schedule
Execution and Control Phase
Controlling the Project
Completion Phase
Gantt Chart
Planning Projects with CPM/PERT
Basic AON CPM Network Example
AON CPM Network Schedule Example
AON PERT Network Schedule Example
Project Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Product Design and Development (PMO04)

Objectives:

- Describe the life cycle of products
- Detail the drivers of new product development
- Understand the principles of product development
- Describe the product design organizational structure
- Review the changing paradigms in product design development
- Explore the steps linking product design and processes
- Work with the product design process flow
- Perform a break-even analysis
- Perform a make or buy analysis
- Define quality function deployment (QFD)
- Explore the house of quality
- Detail product design techniques
- Review service design and development

Lessons:

Product Design and Development — Overview
Need for New Products
Drivers of New Product Development
Product Development Principles
Design Organizational Structures
Changing Paradigms in Design Development
Linking Designs and Processes
Product Design Process Flow
Product Design Process – Matching Exercise
Break-Even Analysis
Break-Even Analysis - Exercise
Make-or-Buy Cost Analysis
Quality Function Deployment
House of Quality — Overview
House of Quality — Example
Product Design Techniques
Designing Services — Characteristics
Service Design Process Flow
Product Design and Development — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Process Design Strategies (PMO05)

Objectives:

- Define process design
- Detail the factors influencing process design
- Describe the different process choices
- Outline transformation process types
- Build core process design structures
- Determine the cost equalization point (CEP)
- Interpret the cost equalization point (CEP) graphic
- Define process layout design
- Detail the factors driving process layout design
- List the various process layout options
- Match process choices with layout choices
- Describe hybrid layouts
- Explain production cells
- Maximize process layout efficiency
- Work with assembly lines and line balancing

Lessons:

Process Design Strategies — Overview
What is Process Design?
Factors Influencing Process Design
Process Choices
Transformation Process – Definitions and Types
Process Design — Core Design Structure
Cost Equalization Point (CEP)
CEP Graphic
Defining Process Layout Design
Factors Driving Process Layout Design
Process Layout Options
Process Choice and Layout Positioning Matrix
Assessing Process and Resource Layout Choices
Hybrid Process Layouts
Production Cells
Maximizing Process Layout Efficiency
Assembly Line and Line Balancing
Process Design Strategies — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Total Quality Management (PMOO7)

Objectives:

- Define quality
- Discuss why quality has become so important
- Detail the dimensions of quality
- Review the ideas of quality management thought leaders
- Review the elements of the cost of quality
- Discuss the hidden costs of poor quality
- Interpret the cost of quality graphs
- Define total quality management (TQM)
- Outline TQM and strategic activities
- Define the TQM program
- Define quality control
- Discuss continuous improvement
- Define process management
- Describe the elements of design for quality
- Review the elements of employee involvement in quality management
- Compare lean and TQM
- Outline the components of the TQM tool kit

Lessons:

Total Quality Management — Overview
Defining Quality
Why Has Quality Become So Important?
Dimensions of Quality
Quality Thought Leaders
Cost of Quality
Hidden Costs of Poor Quality
Cost of Quality Graphs
Total Quality Management — Definition
TQM and Strategy Activities
TQM Program
Quality Control
Continuous Improvement
Process Management
Design for Quality
Employee Involvement and Empowerment
Lean Processes
TQM Tool Kit
Total Quality Management — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Statistical Quality Control (PMOO8)

Objectives:

- Define statistical quality control (SQC)
- Review the statistical quality control system
- Detail the three stages of statistical quality control
- Describe the different types of quality problems
- Explore the range of quality problems
- Explain process variance
- Describe the patterns of variability
- Review process capability ratio and index calculations
- Define statistical process control (SPC)
- Define inspection
- Review the basics of inspection
- Review sampling techniques
- Develop a sampling plan
- Work with x-bar and p-control charts

Lessons:

Statistical Quality Control — Overview
Defining Statistical Quality Control (SQC)
The Statistical Quality Control System
Three Stages of Statistical Quality Control
Types of Quality Problems
Exploring Quality Problems
Understanding Process Variance
Sources of Variation in Processes
Patterns of Variability — Data Collection
Patterns of Variability
Process Capability
Process Capability Ratio and Index
Defining Statistical Process Control (SPC)
Defining Inspection
Inspection Basics
Acceptance Sampling Techniques
Developing a Sampling Plan
SPC – Control Chart Basics
p-Chart – Steps
Creating a p-Chart
Interpreting SPC Charts
Statistical Quality Control — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Process Improvement and Optimization (PMOO9)

Objectives:

- Define process improvement
- Explore process improvement paths
- Discuss process improvement dynamics
- Detail the elements of process improvement
- Work with process improvement methodologies
- Explain Six Sigma quality
- Detail the tools for Six Sigma quality improvement
- Work with flowcharts
- Work with check sheets
- Work with histograms
- Work with cause-and-effect diagrams
- Work with Pareto diagrams
- Work with scatter diagrams
- Work with control charts
- Apply benchmarking
- Work with balanced scorecard
- Use lean kaizen and process improvement
- Apply sustainability and process improvement

Lessons:

Process Improvement and Optimization — Overview
Defining Process Improvement
Process Improvement Paths
Process Improvement Dynamics
Elements of Process Improvement
Process Improvement Methods: Plan-Do-Check-Act (PDCA)
Process Improvement Methods: Define-Measure-Analyze-Improve-Control (DMAIC)
Six Sigma Quality
Tools for Six Sigma Quality Improvement
Flow Charts
Check Sheets
Histograms
Cause-and-Effect Diagrams
Pareto Diagram
Scatter Diagrams
Control Charts
Benchmarking
Balanced Scorecard
What Is Lean?
Lean Kaizen Cycle
Sustainability and Process Improvement Contribution
Process Improvement and Optimization — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Organizational Management and Performance (PMO10)

Objectives:

- Define the objectives of organizational design
- Detail the principles of organizational design
- List the values of organizational design
- Design capable organizations
- Guide the organization through change
- Review change management strategies
- Detail the eight steps of change management
- Explain the role of change leadership and management
- Explain risk terms and concepts
- Manage organizational resiliency
- Detail the tools for managing risk
- Outline workplace management goals
- Review the job characteristic model
- Improve job potential and motivation
- Calculate work measurements and standards
- Perform a time study calculation
- Perform a work sampling calculation

Lessons:

Organizational Management and Performance — Overview
Objectives of Organizational Design
Principles of Organizational Design
Organizational Design Values
Designing Capable Organizations
Guiding the Organization Through Change
Change Management Strategies
Eight Steps of Change Management
Role of Change Leadership and Management
Risk Terms and Concepts
Managing Organizational Resiliency Tools for Managing Risk
Workplace Management Goals
Job Characteristics Model
Improving Job Potential and Motivation
Work Measurements and Standards
Work Measurement Techniques
Time Study Steps
Work Sampling Steps
Work Sampling — Activity Percentages
Organizational Management and Performance — Summary and Review

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Appendix A: Learning Programs by Role

Cross-Functional and Sr. Management
PMO01: Operations Management
POP05: Sales and Operations Planning
POP07: Aggregate Operations Planning
PMO02: Introduction to Process and Operations
PMO03: Project Management
PMO09: Process Improvement and Performance
PMO10: Organizational Management and Performance
POP10: Operations Systems

Supply Chain Manager – Strategic
POP02: Introduction to Planning
POP03: Forecasting
POP05: Sales and Operations Planning
POP07: Aggregate Operations Planning
PDL02: Introduction to Distribution and Logistics
PDL03: Channel Network Design
PMO09: Process Improvement and Performance
PMO10: Organizational Management and Performance

Supply Chain Manager – Operational
PIM07: Lean Inventory – Theory and Practice
PIM08: Introduction to Purchasing and Procurement
PIM09: Sourcing Strategies
POP08: Master Scheduling Foundations
PDL04: Distribution Inventory Management
PDL07: Warehouse Management
PDL08: Packaging and Material Handling
PDL09: Transportation Management
PDL10: Transportation Operations

Master Scheduling Manager
POP02: Introduction to Planning
POP03: Forecasting
POP04: Demand Management
POP05: Sales and Operations Planning
POP07: Aggregate Operations Planning
POP08: Master Scheduling Foundations
POP09: Master Scheduling Processes
PDL05: Distribution Requirements Planning

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Appendix A: Learning Programs by Role

Buyer/Purchasing Control
PIM02: Introduction to Inventory Management
PIM03: Purpose and Function of Inventory
PIM04: Inventory Replenishment Management
PMM04: Basics of Materials Requirements Planning
PMM05: Managing with MRP
PIM08: Introduction to Purchasing and Procurement
PIM09: Sourcing Strategies
PIM10: Purchase Order Management

Inventory Planner
POP02: Introduction to Planning
PIM02: Introduction to Inventory Management
PIM03: Purpose and Function of Inventory
PIM04: Inventory Replenishment Management
PIM05: Additional Inventory Management Techniques and Inventory Performance
PIM07: Lean Inventory – Theory and Practice
PMM04: Basics of Materials Requirements Planning (MRP)
PMM05: Managing with MRP
PMM07: Capacity Planning and Management

Distribution and Logistics Manager
PIM08: Introduction to Purchasing and Procurement
PIM09: Sourcing Strategies
POP08: Master Scheduling Foundations
PDL04: Distribution Inventory Management
PDL05: Distribution Requirements Planning (DRP)
PDL07: Warehouse Management
PDL08: Packaging and Material Handling
PDL09: Transportation Management
PDL10: Transportation Operations

Materials Manager
PIM02: Introduction to Inventory Management
PIM03: Purpose and Function of Inventory
POP05: Sales and Operations Planning
POP08: Master Scheduling Foundations

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Appendix A: Learning Programs by Role

Scheduling Foundations
PIM04: Inventory Replenishment Management
PMM04: Basics of Materials Requirements Planning
PIM08: Introduction to Purchasing and Procurement
PIM09: Sourcing Strategies
PDL07: Warehouse Management
PDL08: Packaging and Material Handling

Production Manager
PMM02: Introduction to Manufacturing Management
PMM03: Manufacturing Process Structures
PMM07: Capacity Planning and Management
PMM08: Production Activity Control
PMM09: Advanced Scheduling
PMM10: Lean Production Management
PMO05: Process Design Strategies
PMO07: Total Quality Management
PMO08: Statistical Process Control
PMO09: Process Improvement and Performance

Engineering Management
PMO01: Operations Management
PMO02: Introduction to Process and Operations
PMO03: Project Management
PMO04: Product Design and Development
PMO05: Process Design Strategies
PMO07: Total Quality Management
PMO08: Statistical Process Control
PMO09: Process Improvement and Performance
PMO10: Organizational Management and Performance

Appendix B: Learning Programs by Topic

Statistical Inventory Planning and Control
PIM04: Inventory Replenishment Management
PIM05: Additional Inventory Management Techniques and Inventory Performance
PDL04: Distribution Inventory Management

Material Requirements Planning (MRP)
POP02: Introduction to Planning
PMM04: Basics of Material Requirements Planning
PMM05: Managing with MRP
PMM07: Capacity Planning and Management

Managing Sales and Operations Planning (S&OP)
POP02: Introduction to Planning
POP03: Forecasting
POP04: Demand Management
POP05: Sales and Operations Planning
POP07: Aggregate Operations Planning

Master Scheduling Issues
POP02: Introduction to Planning
POP03: Forecasting
POP04: Demand Management
POP05: Sales and Operations Planning
POP07: Aggregate Operations Planning
POP08: Master Scheduling Foundations
POP09: Master Scheduling Processes

Purchasing Control Issues
PIM08: Introduction to Purchasing and Procurement
PIM09: Sourcing Strategies
PIM10: Purchase Order Management

Shop Floor Issues
PMM02: Introduction to Manufacturing Management
PMM03: Manufacturing Process Structures
PMM07: Capacity Planning and Management
PMM08: Production Activity Control
PMM09: Advanced Scheduling
PMM10: Lean Production Management

FOUNDATIONS
OF SUPPLY CHAIN MANAGEMENT

Appendix B: Learning Programs by Topic

Warehouse and Transportation Issues
PDL07: Warehouse Management
PDL08: Packaging and Material Handling
PDL09: Transportation Management
PDL10: Transportation Operations

Creating Distribution Channels
PDL02: Introduction to Distribution and Logistics
PDL03: Channel Network Design

Planning Distribution Inventories
PDL04: Distribution Inventory Management
PDL05: Distribution Requirements Planning

Inventory Control Issues
PIM02: Introduction to Inventory Management
PIM03: Purpose and Function of Inventory
PIM04: Inventory Replenishment Management
PIM05: Additional Inventory Management Techniques and Inventory Performance

Lean Issues
PIM07: Lean Inventory – Theory and Practice
PMM10: Lean Production Management
PMO05: Process Design Strategies
PMO07: Total Quality Management
PMO08: Statistical Process Control
PMO09: Process Improvement and Performance
PMO10: Organizational Management and Performance

Issues in Demand Management
POP02: Introduction to Planning
POP03: Forecasting
POP04: Demand Management

Issues in Quality Management
PMO07: Total Quality Management
PMO08: Statistical Process Control
PMO09: Process Improvement and Performance

Appendix C: Course Design

Instructor tools include:
- Module-level PowerPoint Presentations
- Case Studies

Each course (collection of modules) consists of a learning plan that includes:
- Modules with readings, practice questions, key terms, interactives, and videos
- Performance checks for each module

Note that the readings and practice questions are grouped topically to allow users to read and then practice concepts related to each topic.

Course tools also include:
- Course dashboard

About ASCM

The Association for Supply Chain Management (ASCM) is the global leader in supply chain organizational transformation, innovation and leadership. As the largest non-profit association for supply chain, ASCM is an unbiased partner, connecting companies around the world to the newest thought leadership on all aspects of supply chain. ASCM is built on a foundation of APICS certification and training spanning 60 years. Now, ASCM is driving innovation in the industry with new products, services and partnerships that enable companies to further optimize their supply chains, secure their competitive advantage and positively impact their bottom lines.

For more information, visit **ascm.org**