PRINCIPLES ON DEMAND
Program: Course Selection Guide

Please see the following pages for role-based and topic-based programs.

Course Code Numbering Key:
PIM – Principles of Inventory Management
PMM – Principles of Manufacturing Management
PDL – Principles of Distribution and Logistics
PMO – Principles of Managing Operations

PIM02: (PIM – Principles of Inventory Management; 01 – PIM course 2)

Each course is approximately ~ 2 hours of self-paced online study:
The course objectives and topics (table of contents) is provided for each course.

NOTE: This course selection guide is intended for us by corporations interested in purchasing the full library access to Principles On Demand.

To see courses tailored for individual purchase, please visit ascm.org/products/principles-on-demand.
Courses by job role

Cross-Functional and Sr Management
- PMO01: Operations Management – Foundations
- POP05: Sales and Operations Planning (S&OP)
- POP07: Aggregate Operations Planning
- PMO02: Operations and Processes
- PMO03: Project Management
- PMO09: Process Improvement and Performance
- PMO10: Organizational Management and Performance
- POP10: Operations Systems

Supply Chain Manager – Strategic
- POP02: Planning Foundations
- POP03: Forecasting
- POP05: Sales and Operations Planning (S&OP)
- 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 – Concept and Practice
- PIM08: Fundamentals of Purchasing
- PIM09: Sourcing Strategies
- POP08: Master Scheduling Foundations
- PDL04: Inventory Management
- PDL07: Warehouse Management
- PDL08: Packaging and Material Handling
- PDL09: Transportation Management
- PDL10: Transportation Operations

Buyer/Purchasing Control
- PIM02: Fundamentals of Inventory Management
- PIM03: Purpose and Function of Inventory
- PIM04: Inventory Replenishment Management
- PMM04: Basics of Materials Requirements Planning (MRP)
- PIM08: Fundamentals of Purchasing
- PIM09: Sourcing Strategies
- PIM10: Purchase Order Management and Performance Measurement

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

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

Materials Manager
- PIM02: Fundamentals of Inventory Management
- PIM03: Purpose and Function of Inventory
- POP05: Sales and Operations Planning (S&OP)
- POP08: Master Scheduling Foundations
- PIM04: Inventory Replenishment Management
- PMM04: Basics of Materials Requirements Planning (MRP)
- PIM08: Fundamentals of Purchasing
- 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
- PMM05: Process Design Strategies
- PMM07: Total Quality Management
- PMM08: Statistical Process Control
- PMM09: Process Improvement and Performance

Engineering Management
- PMO01: Operations Management – Foundations
- PMO02: Operations and Processes
- PMO03: Project Management
- PMO04: Product Design and Development
- PMM05: Process Design Strategies
- PMM07: Total Quality Management
- PMM08: Statistical Process Control
- PMM09: Process Improvement and Performance
- PMM10: Organizational Management and Performance
Courses by topic

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

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

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

**Master Scheduling Issues**
POP02: Planning Foundations
POP03: Forecasting
POP04: Demand Management
POP05: Sales and Operations Planning (S&OP)
POP07: Aggregate Operations Planning
POP08: Master Scheduling Foundations
POP09: Master Scheduling Processes

**Purchasing Control Issues**
PIM08: Fundamentals of Purchasing Management
PIM09: Sourcing Strategies
PIM10: Purchase Order Management and Performance Measurement

**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

**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: Inventory Management
PDL05: Distribution Requirements Planning (DRP)

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

**Lean Issues**
PIM07: Lean Inventory – Concept and Practice
PMM10: Lean Production Management
PMO04: 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: Planning Foundations
POP03: Forecasting
POP04: Demand Management

**Issues in Quality Management**
PMO07: Total Quality Management
PMO08: Statistical Process Control
PMO09: Process Improvement and Performance
Course Code:
PIM01, PDL01, PM001, POP01, PMM01

Course Title:
Operation Management Foundations

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

Topics:
Operations Management Foundations - Overview
What is Operations Management
What Business 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
Course Code:
PDL02

Course Title:
Introduction to Distribution and Logistics

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
• Understand the concept and practice of reverse logistics
• 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

Topics:

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 Intermediaries
Role of the Distribution Function
Defining Logistics Management
Logistics Management Functions
Logistics Operations
Reverse Logistics and Motivating Factors
Reverse Logistics Hierarchy and Benefits
Logistics Strategy
Guidelines for Logistics Strategy
Logistics and Supply Chain Management
Introduction to Distribution and Logistics - Summary and Review
Course Code:
PDL03

Course Title:
Channel Network Design

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
- Discuss 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.

Topics:

Channel Network Design - Overview
Channel Network Design Fundamentals
Reasons for Supply and Distribution Channels
Critical Design Considerations
Channel Design Factors
Level of Channel Dependency
Channel Design - Manufacturing Method
Channel Configuration Attribute Matrix
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
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
Course Code: PDL04

Course Title: Inventory Management

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

Topics:

- Inventory Management - Overview
- Inventory Definitions
- Functions of inventory
- Strategic Inventory Management Process
- Characteristics of inventory in the Distribution Channel
- Channel Inventory and Demand Flows
- Inventory Replenishment Components
- Ordering Techniques - When to Order
- Order Point - Basic Model and Order Point Trigger
- Order Point - Potential of Demand Variation and Safety Stock
- Calculating the Safety Stock
- Determining the Order Quantity
- Order and Inventory Carrying Cost Components
- Determining the Optimal Order Quantity
- EOQ Calculation
- Maximum and Minimum Ordering
- Replenishment Planning Process
- Inventory Management - Summary and Review
Course Code: PDL05

Course Title: Distribution Requirements Planning

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 – the heart of DRP
- 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 recalculation
- Explore DRP and the bill of distribution (BOD)
- Outline the DRP planning process
- Perform a full DRP calculation

Topics:

Distribution Requirements Planning (DRP) - 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 DRP Grid
Net Requirements and the DRP Grid
DRP Planned Order Generation
PAB and Net Requirements Recalculation
DRP Grid Exercise
DRP and the Bill of Distribution
DRP Planning Process
DRP Example
Distribution Requirements Planning (DRP) - Summary and Review
Course Code: PDL07

Course Title: Warehouse Management

Objectives:

- Define warehouse management
- Detail warehouse functions – materials handling, product storage, order management, and information transfer
- Describe the different types of warehouse – private, public, contract, and in transit
- Explore the basic objectives of warehousing
- Review warehousing strategic decision components
- Use of third-party logistics (3PL) service providers in warehousing strategy
- Detail the warehouse operational management process
- Discuss the importance of warehouse work standards
- 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

Topics:

- Warehouse Management - Overview
- Defining Warehouse Management
- Warehouse Functions – Materials Handling
- Product Storage
- Order Management
- Information Transfer
- Types of Warehousing
- Basic Operations of Warehousing
- Strategic Decision Components
- Use of Third-Party Logistics (3PL)
- Warehouse Management Process
- Importance of Warehouse Standards
- Receiving Flow
- Warehouse Stocking Functions
- Three P’s of inventory Control
- Transaction Management
- Order Picking Options
- Order Shipment Flow
- Warehouse Performance
- Warehouse Management - Summary and Review
Course Title:
Packaging and Materials Handling

Objectives:

- Define warehouse design and layout objectives
- Determine warehouse size and capacity
- Describe basic warehouse layouts
- Understand 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

Topics:
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 Low-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
Course Code: PDL09

Course Title: Transportation Management

Objectives:

- Define transportation management
- Understand 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

Topics:

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
Modes of Transportation
Types of Transportation Carriers
Third-Party Logistics (3PL) – Functions and Transportation
Logistics Outsourcing Models
Transportation Challenges
Transportation Management – Summary
and Review
Course Code: PDL10

Course Title: Transportation Operations

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

Topics:

Transportation Operations – Overview
Session Learning Objectives
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
Transportation Mode Selection
Transportation Carrier Selection
Transportation Routing and Scheduling
Documentation and Post-Shipment Processing
Transportation Performance Measurement
Transportation Performance Scorecard
Transportation Management System
Transportation Operations – Summary and Review
Course Code: PIM02

Course Title: Fundamentals of Inventory Management

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 dynamics
- Understand how inventory provides value
- Determine whether inventory is an asset or a liability
- Assess the financial impact of inventory management

Topics:

Fundamentals of 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 Issues
Balancing Demand and Supply Objectives
Inventory – Conflicting Objectives
Inventory Trade-Off Decisions
Inventory and Demand Flows
Inventory Dynamics
How Does Inventory Provide Value?
Inventory – Asset or Liability?
Return on Assets
Financial Impact of Inventory
Fundamentals of Inventory Management - Summary and Review
Course Code:
PIM03

Course Title:
Purpose and Function of Inventory

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 unit cost
- Detail the sources of inventory order costs
- Define the components of inventory carrying cost
- Explore effect of stock out and capacity-related costs
- Work with the five basic methods of inventory valuation
- Discuss how excess and obsolete inventories affect inventory management
- Review the components of transportation cost
- Review inventory management performance measurements
- Review the concept of cost-benefit trade-off analysis

Topics:

Purpose and Function of Inventory - Overview
Purpose of Inventory
Functions of Inventory
Purpose of Decoupling/Buffering Inventories
How Much Inventory Is Needed?
Components of Inventory Decisions
Defining Cycle Inventory and Safety Inventory
Defining Seasonal Inventory
Inventory Costs
Unit Costs
Order Costs
Inventory Carrying Cost Components
Stockout Costs
Capacity-Related Costs
Inventory Valuation
Surplus/Obsolete Inventory
Transportation Cost
Measuring Inventory Performance
Cost-Benefit Trade-Off
Purpose and Function of Inventory - Summary and Review
Course Code: PIM04

Course Title: Inventory Replenishment Management

Objectives:

- Understand the inventory demand driver
- Define inventory replenishment management
- Detail the components of inventory replenishment management
- Describe the inventory replenishment review interval
- 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 the order quantity
- Detail order and inventory carrying cost components
- Determine the economic order quantity (EOQ)
- Review the inventory replenishment planning process

Topics:

- Inventory Replenishment Management – Overview
- Understanding the Demand Driver
- Defining Inventory Replenishment Management
- Components of Inventory Replenishment Management
- Replenishment Review Interval: Continuous Versus Periodic Review
- Inventory Replenishment Principles
- Replenishment Ordering Techniques
- Visual Review Technique
- Two Bin System Technique
- Periodic Review System Technique
- Order Point Technique
- Order Point – Potential of Demand Variation and Safety Stock
- Calculating the Safety Stock
- Determining the Order Quantity
- Order and Inventory Carrying Cost Components
- Determining the Economic Order Quantity
- Replenishment Planning Process
- Inventory Replenishment Management - Summary and Review
Course Code: PIM05

Course Title: Additional Inventory Replenishment Techniques and Inventory Performance

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
- Work with financial statements and inventory
- Calculate inventory values, turns, and ratios
- Define inventory performance management tools
- Understand and work with ABC inventory control
- Establish 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 today’s inventory electronic data collection technologies

Topics:

Inventory Performance - Overview
Additional Inventory Replenishment Techniques
Supplier Lead Time Uncertainty
Time-Phased Order Point (TPOP)
Replenishment by Item Class
Inventory Performance Management
Financial Statements
Inventory Values, Turns, and Ratios
Inventory Performance
ABC Inventory Control
Impact of Inventory Inaccuracy and Inventory Accuracy Tool Kit
Three P’s of Inventory Control
Transaction Management
Periodic and Perpetual Inventory Review
Year-End (Periodic) Physical Inventory
Cycle Counting – Definition and Methods
Periodic Physical Inventory vs. Cycle Counting
Electronic Data Collection
Inventory Performance – Summary and Review
Course Code: PIM07
Course Title: Lean Inventory

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 major sources of operations waste
- Discuss the eight types of process waste
- 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/containers
- Review the calculation of production, move, and supplier kanbans
- Discuss the benefits of lean management

Topics:

Lean Inventory – Theory and Practice – Overview
Defining Just-In-Time (JIT)
Defining Lean
Why Implement Lean?
The Structure of Lean
Three Major 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 Card – Move
One-Card Kanban Production Example
Calculating Kanban Cards – Supplier
Lean Benefits
Lean Inventory – Theory and Practice – Summary and Review
Course Code: PIM08

Course Title: Fundamentals of Purchasing

Objectives:

- Define the purchasing function
- Identify purchasing as a key business function
- Describe the categories of purchasing
- Detail the strategic responsibilities of purchasing
- Describe purchasing’s detailed responsibilities
- Understand the structure of the purchasing organization
- Describe purchasing’s role with other business functions
- Understand the difference between centralized and decentralized purchasing
- Describe the buyer/planner concept
- Manage the make or buy decision
- Create an effective purchasing strategy

Topics:

- Fundamentals of Purchasing – Overview
- Defining Purchasing
- Purchasing as a Key Business Function
- Categories of Purchasing
- Purchasing’s Strategic Responsibilities
- Detailed Purchasing Responsibilities
- Purchasing’s Place in the Organization
- Typical Purchasing Organization
- Purchasing’s Relations with Other Functions
- Centralized Versus Decentralized Purchasing
- Buyer/Planner Concept
- Strategic Versus Operational Activities
- Anatomy of Purchasing Strategy
- Step 1 – Environmental Scanning
- Step 2 – Organizational Structure
- Step 3 – Inventory Strategy
- Step 4 – Supplier Relations
- Step 5 – Technology Enablers
- Step 6 – Performance/Continuous Improvement
- Fundamentals of Purchasing – Summary and Review
Course Code: PIM09

Course Title: Sourcing Strategies

Objectives:

- Define the sourcing process
- Understand the difference between strategic and tactical buying
- Detail the steps in reaching the make-or-buy decision
- Develop a cost avoidance analysis
- Conduct an effective spend analysis
- Distinguish between different types of supplier relationship
- Execute a sole- or a multiple-supplier sourcing strategy
- Effectively score capabilities and select the optimal supplier
- Work with different supplier pricing alternatives
- Engage in effective negotiations with a supplier
- Understand the elements of supplier contract formulation
- Construct a collaborative program that engages the supplier in product design
- Define supplier relationship management (SRM)

Topics:

Sourcing Strategies – Overview
Defining Sourcing
Defining Strategic Sourcing
Strategic Sourcing Activities
Tactical Buying
Tactical Buying Versus Strategic Sourcing
Sourcing Process Steps
Make-or-Buy Decision
Spend Analysis
Creating the Bid or Proposal
Supplier Sourcing
Sourcing Alternatives
Supplier Scoring and Assessment
Supplier Categorization
Overview of Pricing
Negotiation Objectives
Discounting
Contracting
Design Collaboration
Advantages of Collaborative Supplier Involvement
Supplier Relationship Management (SRM)
Benefits of SRM
Implementing SRM Strategy
Sourcing Strategies – Summary and Review
Course Code: PIM10

Course Title:
PO Management and Performance Measurement

Objectives:

- Define the purchasing management process
- Manage the procurement database
- Detail the various purchase order methods
- Trace the purchase order flow from requirements identification to purchase order close-out
- Determine the timing of purchase order release
- Use material requirements planning (MRP), reorder point, and kanban systems for order release
- Establish a vendor-managed inventory (VMI) process
- Determine inbound transportation factors
- Perform receiving and order closeout
- Review purchase order status reporting
- Review supplier and internal purchase organization performance
- Work with international sourcing
- Explore the impact of the Internet and computerized technologies on procurement.

Topics:

Purchase Order Management and Performance Measurement – Overview
Purchasing Management Process
Procurement Database Files
Timing of Purchases
Purchasing Process Methods
Purchase Order Flow
Determining PO Release
Material Requirements Planning
MRP Purchase Order Actions
Purchasing Kanban
Supplier Kanban Example
Vendor Managed Inventory (VMI)
Transportation Mode Decision
Receiving and Order Close-out
Status Reporting
Purchasing Performance Measurement
International Sourcing Overview
Impact of the Internet on Purchasing
Internet-Enabled Purchasing Components
Implementing e-Procurement
Purchase Order Management and Performance Measurement – Summary and Review
Course Code: PMM02

Course Title: Introduction to Manufacturing Management

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

Topics:

Introduction to Manufacturing Management - Overview
Defining Manufacturing
Defining Manufacturing Strategy
Product Manufacturing Environments
Variety, Volume, and Lead Time
Product Manufacturing Positioning
Marketplace/Customer Expectations
Manufacturing Process Choices
Processing Tasks and Flows
Process Choice Positioning
Process Layout Options
Process Layout Positioning
Manufacturing Strategy Steps
Forms of Manufacturing Strategy
Manufacturing Structural Choices
Batch Versus Flow Production
Push Model
Pull Model

Introduction to Manufacturing Management - Summary and Review
Course Code: PMM03

Course Title: Manufacturing Product Structures

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.

Topics:

Manufacturing Product Structures Overview
Product Structure Definitions
One Product Structure
Product Structure Management Process
Bill of Material Uses
Basic Bill of Material Formats
Other BOM Forms
Achieving BOM Accuracy
Work Centers
Work Center Utilization and Efficiency
Processing Time Elements
Establishing the Process Routing
Importance of Manufacturing Costing
Product Costing Components and Uses
Product Structure Cost Development
Manufacturing Product Structures - Summary and Review
Course Code: PMMO4

Course Title: Basics of Material Requirements Planning (MRP)

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

Topics:

Basics of MRP - Overview
How Do You Make a Product?
Critical Inventory Questions
Inventory Management Methods
Independent Versus Dependent Demand
Problem with Statistical Stock Replenishment
Statistical Replenishment/MRP Comparison
Time Phasing – the Heart of MRP
MRP Definition
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
MRP Generation Order Policies
MRP Planned Order Generation
PAB and Net Requirements Recalculation
MRP Grid Exercise
Basics of MRP - Summary and Review
Course Code: PMM05

Course Title: Managing with MRP

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

Topics:

Managing with MRP Overview
Bills of Material Example
Gross and Net Requirements – Explosion
MRP Explosion – Level 0
MRP Explosion – Level 1
MRP Explosion – Level 2
Role of the MRP Planner
Causes of MRP Change
MRP Management Process
Prerequisites for MRP
MRP Generation
Types of MRP Supply Orders
MRP Action Messages
MRP Action Report
Action Message Worksheet
Answering Action Messages
Policies and Methods
MRP Problem Indicators
MRP Performance Measurements
Managing with MRP – Summary
and Review
Course Code: PMM07

Course Title: Capacity Planning and Management

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

Topics:
Capacity Planning and Management Overview
Definitions of Capacity
Capacity Elements
Capacity Management Levels
CRP Definition
Flexibility of Capacity and Scheduling
Capacity Planning Objectives
Inputs into Capacity Management
Managing the Capacity Process
Capacity Components
Calculating Work Center Capacity
Calculating Work Center Load
Work Center Aggregate Load Display
Basic Scheduling and Loading Techniques
Finite and Infinite Loading
Load Profile
Load Versus Capacity Report
Managing Excesses and Shortages in Capacity
Capacity Planning and Management - Summary and Review
Course Code:
PMM08

Course Title:
Production Activity Control

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.

Topics:

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 Database Files
PAC System Prerequisites
Major PAC Activities
Order Release Process
Production Order Packet
Scheduling Operations
Backward Scheduling Example
Detailed Scheduling
Dispatching Priority Rules
Data Collection and Monitoring
Purposes of PAC Control and Feedback
Short-Term Corrective Actions
Order Disposition and Closeout
PAC Activities – A Summary
Production Activity Control - Summary and Review
Course Code:
PMM09

Course Title:
Process Improvement and Optimization

Objectives:

- Define process improvement
- Explore process improvement paths
- Understand process improvement dynamics
- Detail the elements of process improvement
- Work with process improvement methodologies
- Understand 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 the balanced scorecard
- Use lean kaizen and process improvement
- Apply sustainability and process improvement

Topics:

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
Lean Kaizen and Sustainability
Lean Kaizen Circle
Sustainability and Process Improvement Contribution
Process Improvement and Optimization – Summary and Review
Course Code: PMM10
Course Title: Organizational Management and Performance

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
- Understand the role of change leadership and management
- Understand risk terms and concepts
- Manage organizational resiliency
- Detail the tools for managing risk
- Outline workplace management goals
- Review the job characteristics model
- Improve job potential and motivation
- Calculate work measurements and standards
- Perform a time study calculation
- Perform a work sampling calculation

Topics:

Organizational Management and Performance – Overview
Objectives and Definition 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 Concept
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
Course Code: POP04

Course Title: Planning Foundations

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.

Topics:

Planning Foundations - Overview
Defining Planning
Planning Levels High
The Planning and Control Environment High
The Planning Process – Shewhart Cycle High
The Closed-Loop Planning Cycle High
The Principles of Planning High
Strategic Questions
Boundaries of Enterprise Strategies
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
Planning Foundations - Summary and Review
Course Code: 
POP04

Course Title: 
Forecasting

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

Topics:

Forecasting - Overview
Defining Forecasting
Four Levels of Forecasting
What Is Demand?
Universal Principles of Forecasting
The Forecasting Process
Improving Forecast Accuracy
General Forecasting Techniques
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
Course Code: POP04

Course Title: Demand Management

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

Topics:

- Demand Management - Overview
- Defining Demand Management
- Components of Demand Management
- Evaluating Forecast Performance
- Measures of Forecast Error
- Calculating Forecast Error
- Mean Absolute Deviation (MAD) of the Forecast Error
- Standard Deviation
- Normal Distribution of Forecast Error
- Forecast Bias
- Mean Absolute Percentage Error (MAPE)
- Tracking Signal
- Limits of Forecasting
- Defining CRM
- Order Management
- Order Management Process
- Order Promising
- Customer Service Management
- Nine Steps to Customer Service Management
- Information Technologies
- Performance Measurement
- Demand Management - Summary and Review
Course Title:
Sales and Operations Planning (S&OP)

Objectives:

- Define sales and operations planning (S&OP)
- Understand S&OP in the MPC system
- Understand the S&OP detailed planning process
- Determine product families
- Identify S&OP planning inputs
- Identify S&OP historical input 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
- Define the benefits of S&OP

Topics:

Sales and Operations Planning - Overview
Sales and Operations Planning Definition
Organizations with Separate and Integrated Business Plans
S&OP – A Balancing Act
S&OP in the MPC System
S&OP Inputs and Outputs
S&OP Planning Process
Determining Product Families
S&OP Planning Inputs
Summary of S&OP Outputs
Understanding the MTS S&OP Grid
S&OP Exercise
Understanding the MTO S&OP Grid
Monthly S&OP Planning Process
Data Gathering
Demand Planning
Supply Planning
Pre-S&OP Meeting
Executive S&OP Meeting
Benefits of S&OP
Sales and Operations Planning - Summary and Review
Course Code: POP07

Course Title: Aggregate Operations Planning

Objectives:

- Manage the detailed S&OP process
- Understand the sales and marketing planning processes
- Work with product life cycles and delivery network structures
- Calculate an S&OP product family forecast disaggregation
- Understand 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
- Understand the inventory planning process
- Calculate a production plan using an inventory target
- Develop the distribution plan
- Determine transportation, warehouse, and equipment and labor requirements

Topics:

Aggregate Operations Planning Overview
Detail S&OP Planning – Review
Marketing/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
Resource Planning - Definition
Resource Planning – Levels, Horizons, and Methods
Resource Planning Process
Resource and Load Profiles
Resource Planning Exercise
Inventory Planning Process
Inventory Turnover
Distribution Planning Process
Distribution Channel Structure
Warehouse Plan
Aggregate Operations Planning - Summary and Review
Course Code: POP08

Course Title: Master Scheduling Foundations

Objectives:

- Define master scheduling – principles and concepts
- Understand the role of master scheduling in the manufacturing planning and control (MPC) system
- Detail the objectives of master scheduling
- Understand master scheduling and the manufacturing 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
- Understand 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

Topics:

Master Scheduling Foundations Overview
Master Schedule Definitions
Master Scheduling in the MPC System
Master Scheduling Process Flow
What the Master Schedule is NOT
Marketplace/Customer Expectations
Manufacturing Requirements
Scheduling Approaches
Inputs to 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
Time Fences and the Master Schedule Grid
Master Scheduling Foundations - Summary and Review
Course Title:
Master Scheduling Processes

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
- Understand the use of time fences
- Understand 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

Topics:

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 - Revisited
RCCP Processing Steps
Calculating the Product Load for RCCP
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
Course Title: Operations Systems

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

Topics:

Operations Systems - Overview
Technology Terms Matching Exercise
Importance of Information Technology
Role of Information Technology
Technology Strategic Triangle
Organizational Framework Assumptions
Purpose of Information Systems
How Systems Technology Benefits Planning
What is an ERP System
Evolution of ERP – Stage 1
Evolution of ERP – Stage 2
Evolution of ERP – Stage 3
Evolution of ERP – Stage 4
Evolution of ERP – Stage 5
ERP and Best-of-Breed Systems
Information Technology and Systems Thinking
Enterprise Business System Components
Enterprise System Maturity Model
Benefits Summary
Operations Systems - Summary and Review
Course Code: PM002

Course Title: Processes and Operations

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

Topics:
Processes and Operations – Overview
Processes and Operations Foundations
Defining Processes Medium
Process Diagram
Products Versus Services
Defining Operations
Process Operations Mapping
Defining the Customer
Customers in the Supply Chain
Content of Customer Wants and Needs
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
Process and Operations - Summary and Review
Course Code: PM003

**Course Title:** Project Management

**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

**Topics:**
- 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 System
- 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 Networking
- AON PERT Networking
- Project Management - Summary and Review
Course Code: PM004

Course Title: Product Design and Development

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
- Explore the four houses of quality
- Detail product design techniques
- Review service design and development

Topics:

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
Break-Even Analysis
Make or Buy Analysis
What is Quality Functional Deployment (QFD)?
House of Quality – Overview
House of Quality – Example
The Four Houses of Quality
Product Design Techniques
Designing Services - Characteristics
Service Design Process Flow
Product Design and Development - Summary and Review
Course Code: PM005

Course Title: Process Design Strategies

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
- position process choices with layout choices
- describe hybrid process layouts
- investigate production cells
- maximize process layout efficiency
- work with assembly lines and assembly-line balancing

Topics:

Process Design Strategies – Overview
Factors Influencing Process Design
Process Choices
Transformation Process Type
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 – Revisited
Maximizing Process Layout Efficiency
Assembly Line Example and Line Balancing
Process Design Strategies - Summary and Review
Course Code: PM007

Course Title: Total Quality Management

Objectives:

- Define quality
- Discuss why quality has become so important
- Detail the dimensions of quality
- 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)
- Review the ideas of quality management thought leaders
- Outline TQM and business strategy
- Determine the TQM program
- Define quality control
- Define continuous improvement
- Define process management
- Describe the elements of design for quality
- Review the elements of employee involvement in quality management
- Position lean process management and TQM
- Outline the components of the TQM tool kit

Topics:

Total Quality Management – Overview
Defining Quality
Why Has Quality Become So Important?
Dimensions of Quality
Cost of Quality
Hidden Costs of Poor Quality
Cost of Quality Graphs
Total Quality Management – Definition
Quality Thought Leaders
TQM and Strategy
TQM Program
Quality Control
Continuous Improvement
Process Management
Design for Quality
Employee Involvement
Lean Processes
TQM Tool Kit
Total Quality Management – Summary and Review
Course Code:
PM008

Course Title:
Statistical Quality Control

Objectives:

- Define statistical quality control (SQC)
- Review the statistical quality control system
- Detail the three stages of statistical quality control
- Understand the different types of quality problems
- Explore the range of quality problems
- Understand 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
- Understand how to work with \( \bar{x} \)-bar and p-control charts

Topics:

- 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
- Sampling Techniques
- Developing a Sampling Plan
- SPC – Control Chart Basics
- X\(^{-}\)Chart - Steps
- Creating a p-Chart
- Interpreting SPC Charts
- Statistical Quality Control – Summary and Review
Course Title:
Process Improvement and Optimization

Objectives:

- define process improvement
- explore process improvement paths
- understand process improvement dynamics
- detail the elements of process improvement
- work with process improvement methodologies
- understand 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 the balanced scorecard
- use lean kaizen and process improvement
- apply sustainability and process improvement

Topics:

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
Lean Kaizen and Sustainability
Lean Kaizen Circle
Sustainability and Process Improvement Contribution
Process Improvement and Optimization – Summary and Review
Course Code: PMO10

Course Title: Organizational Management and Performance

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
- Understand the role of change leadership and management
- Understand risk terms and concepts
- Manage organizational resiliency
- Detail the tools for managing risk
- Outline workplace management goals
- Review the job characteristics model
- Improve job potential and motivation
- Calculate work measurements and standards
- Perform a time study calculation
- Perform a work sampling calculation

Topics:

Organizational Management and Performance – Overview
Objectives and Definition 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 Concept
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