



# **APICS PRINCIPLES OF OPERATIONS MANAGEMENT TOPIC OUTLINE**

## **CONCEPTS AND APPLICATIONS**

### **About this Topic Outline**

This outline details the concepts and applications covered in all five of the APICS Principles of Operations Management courses. Professionals interested in Principles will find this is a helpful reference and may use it to identify the course details and topics for each of the five Principles courses. If you have any questions, please contact APICS Customer Service at [service@apics.org](mailto:service@apics.org).

## I. Principles of Inventory Management (PIM)

### Session 1: Operation Management – Foundations

- Define the science and practice of operations management (OM)
- Answer the question why OM should be studied
- Describe how today's business trends are driving operations management
- Discuss the role of operations management in the organization
- Define the value-added activities performed by OM
- Describe how OM fits into the organization
- Describe the functions performed by OM
- Describe how OM has changed over the decades
- Outline the role of OM and business strategy
- Identify how OM contributes to business strategy
- Discuss how businesses can compete with OM
- Detail the ten strategic decisions of OM
- Identify career opportunities in the field of OM
- Perform an inventory management knowledge self-assessment

### Session 2: Fundamentals of Inventory Management

- Define inventory management
- Define inventory management objectives
- 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
- Describe the elements of an effective inventory management strategy
- 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 impact of cash flow and inventory management

#### Advanced Topics

- Trade-off decisions by item class
- Subclasses of inventory
- Item numbering

### **Session 3: Purpose and Function of Inventory**

- Explain why companies carry inventory
- Define the five functions of inventory and describe their use
- Describe the purpose of decoupling inventories
- Detail the components of inventory decision making
- Use a simple formula to estimate inventory throughput and cycle and pipeline inventories
- Define the elements of inventory cost
- Understand and calculate inventory carrying costs
- Define the elements of manufacturing and purchasing costing
- Calculate the impact of stockout costs on the operation
- Discuss how excess and obsolete inventories affect inventory management
- Work with the five basic methods of inventory valuation.

#### **Advanced Topics**

- Measuring inventory throughput
- Cost of preventing a stockout
- Capacity associated costs
- Estimating inventory values
- Calculating order costs
- Inventory valuation methods

### **Session 4: Inventory Replenishment Management**

- Explain the basic functions of statistical inventory management
- Understand the difference between independent and dependent demand
- Define the theory of inventory replenishment management
- Describe the difference between continuous and periodic inventory review
- Describe the inventory replenishment planning process
- Define the seven inventory replenishment methods
- Work with the order point inventory ordering method
- Calculate safety stock
- Calculate the order point
- Calculate a periodic inventory order method
- Calculate the inventory order quantity
- Calculate the economic order quantity (EOQ)
- Review the inventory planning process

#### **Advanced Topics**

- Normal distribution diagram
- Characteristics of order point management
- Periodic review exercise
- EOQ exercise

### **Session 5: Additional Inventory Replenishment Techniques and Inventory Performance**

- Work with several advanced inventory management techniques
- Counter uncertainty in supplier delivery times
- Understand and perform planning using time-phased order point (TPOP)
- Define order quantities by item class
- Work with financial statements and inventory
- Calculate relevant inventory turnover ratios
- Define inventory performance management tools
- Understand and work with ABC inventory control
- Establish inventory accuracy tools
- Understand and establish a cycle counting program
- Identify today's electronic inventory data collection technologies

#### **Advanced Topics**

- Production noninstantaneous receipt
- Products orders and delivered jointly
- Quantity discount

### **Session 6: Mid-Term Exam**

### **Session 7: Lean Inventory - Concept and Practice**

- Define the concepts of Just-in-Time (JIT) and lean and how they apply to the management of inventories
- Describe the evolution of the lean philosophy and techniques
- Define the core principles of lean
- Describe in detail the three major sources of operations waste
- Describe the lean toolkit of techniques to combat waste
- Differentiate value-added work from waste
- Manage inventory effectively in a lean environment
- Determine lean lot sizes
- Establish a pull system
- Calculate the number and work with kanbans/containers
- Describe the benefits of lean on all levels of the organization

#### **Advanced Topics**

- JIT/lean evolution
- Ten cultural and managerial elements of lean
- Impact of lot size reduction
- Lean transformation roadmap

### **Session 8: Fundamentals of Purchasing**

- 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

#### **Advanced Topics**

- Purchasing classification exercise
- Financial impact of purchasing

### **Session 9: Sourcing Strategies**

- Define the sourcing process
- Understand the difference between tactical and strategic buying
- Detail the steps in making 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)

#### **Advanced Topics**

- Cost avoidance analysis
- Spend analysis documents
- Pareto chart of percentage by category
- Supplier selection comparison
- Purchase quantity discount
- Supplier relationship characteristics

### **Session 10: PO Management and Performance Measurement**

- 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
- Using material requirements planning (MRP), reorder point (ROP), 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

#### **Advanced Topics**

- Supplier rating
- Cost of poor quality
- e-SRM services
- e-SRM processing

### **Session 11: Final Exam**