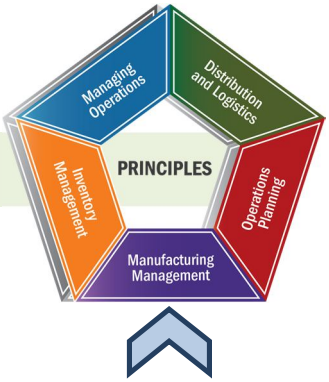

Principles of Manufacturing Management (PMM)

Session 1: Operations Management Foundations

Describe how today's business trends are driving operations management
Define the science of operations management
Identify the decisions made by operations managers
Explain how operations management is important to both manufacturing and service functions
Discuss the role of operations management in the organization
Describe operations management's role in supply chain management
Provide examples of how operations management is a competitive weapon
Identify career opportunities in the field of operations management
Perform a manufacturing management self-assessment review

Session 2: Introduction to Manufacturing Management

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

Session 2: Advanced Topics:

Product profiling
Production plan issues
Layout characteristics – exercise
Performance objectives – exercise
Process selection – unit costs
Process selection – least cost

Session 3: Manufacturing Product Structures

Define the product structure
Define the bill of material
Define the process routing
Product structure management process
Bill of material uses
Basic bill of material formats
Achieving bill of material accuracy
Define work centers
Work center utilization and efficiency
Processing time elements
Establishing the process routing
Manufacturing cost overview
Product structure cost development
Standard cost example

Advanced Topics

Modular bills of material
Engineering change control management
Advanced process routing exercise
Activity based costing

Session 4: Basics of Material Requirements Planning (MRP)

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
Detail the problems with 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 the MRP planning grid calculations

Advanced Topics

Advanced time phasing concepts
Dates and time-buckets
Problem of lumpy demand

Session 5: Managing with MRP

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

Advanced Topics

Planning for scrap and waste
Lowe level coding overview
MRP pegging
MRP and service order management
MRP in the make-to-order environment

Session 6: Mid-Term Exam

Session 7: Capacity Planning and Management

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 of 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

Advanced Topics

Calculating efficiency and utilization
Finite and infinite loading
Manufacturing environments and capacity
Process flow scheduling

Session 8: Production Activity Control

Define production activity control (PAC)

Detail the goals of production activity control (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 manufacturing 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

Advanced Topics

PAC control and feedback process steps
Types of manufacturing order
Characteristics of good PAC performance measurement
Relationship of PAC with other functions

Session 9: Advanced Scheduling

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

Advanced Topics

Production planner's planned order display
Capacity check, scheduling, and release
Theory of constraints (TOC) scheduling

Session 10: Lean Production Management

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 manufacturing
Define the concept of process waste

Use lean to standardize manufacturing 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 lead scheduling techniques
Use lean to develop the “customer-focused” organization.

Advanced Topics

Calculating takt time
Calculating kanban cards
MRP push-based versus lean pull based systems

Session 11: Final Exam