Principles of Operations Planning (POP)

Session 1: Operation 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 an operations planning self-assessment review

Session 2: Planning Foundations
- 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
- Develop business unit strategies
- Describe the components of a planning architecture model

Session 2: Advanced Topics
- Generic competitive values
- Enterprise investment plan
- Profit planning
- Asset/capital planning

Session 3: Forecasting
- Define the forecasting function
- Review of 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 the general forecasting techniques and data sources
Review qualitative, quantitative, and causal forecasting techniques
Discuss why forecasts fail

Session 3: Advanced Topics
- Selection of forecasting models
- Pyramid forecasting
- Deseasonalized forecast
- Forecast trend with exponential smoothing (Holt’s model)
- Forecast trend extrapolation

Session 4: Demand Management
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
Work with customer order management
Define customer service management
Explore demand management technology tools
Define demand management performance

Session 4: Advanced Topics
- Tracking signal
- Forecast error exercise
- Safety stock calculation
- Customer service gap analysis

Session 5: Sales and Operations Planning (S&OP)
Define sales and operations planning (S&OP)
S&OP in the MPC system
S&OP detailed planning process
Determine product families
S&OP planning inputs
S&OP historical input data
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

Session 5: Advanced Topics
   Executing a S&OP level strategy
   S&OP production resource planning

Session 6: Mid-Term Exam

Session 7: Aggregate Operations Planning
   Review the detailed S&OP process
   Understand the sales and marketing planning processes
   Work with product life cycles and delivery network structures
   Calculate a 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 capacity and 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

Session 7: Advanced Topics
   Financial decision – workforce costs
   Financial decision – inventory costs
   Financial decision – total costs

Session 8: Master Scheduling Foundations
   Define master scheduling – principles and concepts
   Understand the role of master scheduling in the 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

**Session 8: Advanced Topics**  
Managing the rolling master schedule  
Cumulative “look ahead” ATP

**Session 9: Master Scheduling Processes**  
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.

**Session 9: Advanced Topics**  
Environmental characteristics  
What is advanced planning and scheduling (APS)?  
Assemble-to-order (ATO) master scheduling

**Session 10: Operations Systems**  
Explore the importance of information technology  
Detail the role of information technology  
Analyze the technology strategic triangle  
Explore technology organization framework assumptions  
Outline operations planning system assumptions  
Explore how system technology benefits planning  
Define enterprise resources planning  
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.

**Session 11: Final Exam**