Detailed Scheduling & Planning

This course focuses on material and capacity scheduling and planning. It includes a detailed explanation of material requirements planning (MRP), a technique suitable for use in job shops. The course also introduces another material planning technique, material-dominated scheduling, which is applicable to process industries and other mature production environments. The course explains capacity requirements planning in detail and introduces other capacity-planning techniques, including processor-dominated scheduling.

I. Planning Material Requirements to Support the Master Schedule
   A. Recognizing Techniques and Practices of Inventory
      1. Types of inventory
      2. Order review methodologies
      3. Lot sizing techniques
      4. Safety-stock techniques
      5. Inventory valuation
      6. Inventory accuracy
      7. Inventory policies
      8. Demand
      9. Inventory performance

   B. Identifying Information Used in Material Planning
      1. Inventory data
      2. Master schedule data
      3. Engineering data
      4. Data accuracy, timeliness, and completeness

   C. Identifying the Desirable Characteristics of the Detailed Material Planning Process
      1. Design characteristics
      2. Performance characteristics
      3. Operational characteristics

   D. Mechanics of the Detailed Material Planning Process
      1. Initialize data
      2. Explosion process
      3. Generate time-phased

   E. Maintaining the Validity of the Material Plan
1. Maintaining priorities
2. Re-planning accounts for demand/supply
3. Revising planning parameters
4. What-if analysis and modeling

F. Interactions with Other Systems (closing the loop)
   1. Business planning
   2. Detailed operations planning

II. Planning Operations to Support the Priority Plan
   A. Recognizing the Characteristics and Techniques of the Detailed Capacity Planning Process
   B. Identifying Information used in the Detailed Capacity Planning Process
      1. Capacity definition and availability
      2. Sources of load
      3. Definitions of process flows
      4. Impacts of rework, scrap, and quality on capacity management
   C. Identifying Desirable Characteristics of the Detailed Capacity Planning Process
      1. Simulation and modeling techniques
      2. Scheduling manufacturing operations
      3. Scheduling logistics operations
      4. Planning and scheduling horizons
   D. Uses of the Detailed Capacity Planning Process
      1. Impacts of capacity management
      2. Capacity planning outputs
      3. Methods of balancing capacity and load
   E. Measuring the Performance of the Detailed Capacity Planning Process
      1. Planned workload to available capacity
      2. Past due load
      3. Work-in-process
   F. Interactions with Other Systems
      1. Business planning
      2. Detailed operations planning
      3. Execution and control
III. Planning Procurement and External Sources of Supply
   A. Establishing Relationships with Suppliers
      1. Principles of partnership with suppliers
      2. Choice of relationship
      3. Necessity of communication

   B. Techniques and Concepts for Supplier Partnerships
      1. Product development and production processes
      2. Purchase order approaches
      3. Delivery approaches
      4. Company billing processes
      5. Supplier rating systems

   C. Implementing the new relationship
      1. Planning techniques
      2. Information used in the procurement process
      3. Supplier and company-related training