Course Schedule 2004: Operations Management, ERP and the Internet

Part 1: ERP

Session 1  Unit 1: The modular concept of R/3

August 17th  Objective:
- Introduce the different modules of R/3 and their tasks as an example of an ERP system.
- Show a typical process flow from sales order entry to the delivery of the product.
- Describe the integration between the different modules
- Show an example of a MRP run

Assignment 1: Integration between R/3 and an APS system

Session 2  Unit 2: Integration between ERP and APS systems

August 18th  Objective:
- Describe the different tasks between an ERP and an APS system
- Introduce the different planning areas of an APS system
- Show the integration between an ERP and an APS system

Part 2: Operations Management and the planning tasks of an APS system

Session 3&4  Unit 3: Demand Planning and Forecasting

August 21st  Objective:
- Introduce the different planning functionalities of a modern demand planning tool
- Show the basic forecasting methods (time-series vs. causal methods)

Assignment 2: Sales and Operations Planning: Describe for the given case study (a dairy company) a possible integration between the demand planning team and the production team. The case study is based on a real-live implementation.

Unit 4: Sales and Operations Planning (SOP)

Objective:
- Show the integration issues between Demand Planning and Supply Planning
- Introduce the task and the planning steps of sales and operations planning
- Show the disadvantage of R/3 compared to an APS system for distributed IT systems
- Show integration problems between forecasting and the supply and production planning
- Show two SOP examples based on real implementations

**Unit 5: Production Strategies & Forecast Consumption**

**Objective:**
- Explain the main production strategies (like make-to-stock and make-to-order) and their consequences

**Session 5**  
**Unit 6: Supply Planning (Midterm Planning)**

**August 23rd**  
**Objective:**
- Show the main tasks of supply planning (parallel procurement, production and distribution planning)
- Show basic concepts of advanced safety stock planning
- Description of three different network concepts (simple heuristic, greedy algorithms, optimization)

**Discuss Assignment 1** (30 min)

**Start Unit 7: Optimization Methods**

**Objective:**
- Introduce the basic concepts of optimization (linear programming, mixed integer programming, decomposition methods, local search algorithms)
- Describe the consequences using optimization algorithms in a supply chain solution

**Assignment 3:** Midterm and Short-term planning: Describe for the given case study (a brewery) an integrated solution approach considering integration to R/3, supply-, distribution and production planning. The case study is based on a real-live implementation.

**Session 6**  
**Unit 7: Optimization Methods**

**August 25th**

**Discuss Assignment 2** (30 min)
Session 7 & 8  Unit 8: Production Planning and Execution (Short-term planning)

August 28th  Objective:
- Introduce the main tasks of production planning
- Describe the steps of a MRP run
- Describe the process flow and integration from an APS system to R/3 and back (including the execution steps in R/3)

Unit 9: Case Study: Midterm and short-term planning

Objective:
- Discuss assignment 3 in detail.
- Show the existing solution from a live customer project

Unit 10: Detailed Scheduling

Objective:
- Introduce the main tasks of detailed scheduling
- Planning strategies
- Optimization
- System Demo “Lekin”
- Finite plans vs. infinite plans (project experiences)
- Case Study: Process flow to create a feasible schedule

Session 9  Unit 11: Outbound Planning

August 30th  Objective:
- Introduce the main tasks of outbound planning (short term distribution, deployment, transport load building)
- Describe rules for shortage or excess situations
- Show the differences between local and global deployment

Unit 12: Transportation Planning and Execution

Objective:
- Show the tasks of transportation planning
- Show the tasks of vehicle scheduling
- Show the necessary execution steps in R/3

Assignment 4: Production Planning and Deployment: Describe for the given case study (a tire company) a possible modeling of the production, show the difficulties and describe a possible deployment approach.
Session 10  Unit 13: ATP (Available-to-promise)

Sept. 1st  Objective:
- Introduce the concept of ATP (rule based ATP, product allocation, multi-level ATP, backorder processing)
- Show the connection between sales order entry and ATP
- Case Study for multi level ATP (based on real project)

Part 3: Internet

Session 11: Unit 14: Web-based Supply Chain collaboration

Sept. 4th  Objective:
- Introduce different collaboration scenarios in a supply chain
- VMI (Vendor managed inventory)
- SMI (Supplier managed inventory)
- Collaborative Forecasting and Promotion Planning
- Collaboration in Transportation Planning

Unit 15: Supply Chain Management Project Planning

Objective:
- Show a 5-step roadmap from project start to the end of implementation
- Supply Chain Management Readiness in a Company
- System landscapes in an implementation project

Exam

Session 12  Final exam

Sept. 4th  Discuss Assignment 4 (30 min)
Questions
Hand out of the “take-home-exam”