

ERP (21-550)

*Advanced Manufacturing Laboratory
Department of Industrial Engineering
Sharif University of Technology*

Session #8



Course Description

▪ *Instructor*

- *Omid Fatahi Valilai, Ph.D. Industrial Engineering Department, Sharif University of Technology*
- *Email: FValilai@sharif.edu, Tel: 6616-5706*
- *Website: Sharif.edu/~fvalilai*

▪ *Class time*

- *Sunday-Tuesday* *16:30-18:30*
- *Wednesday* *09:00-12:00*

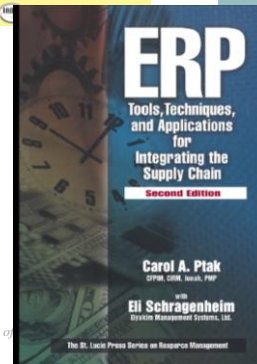
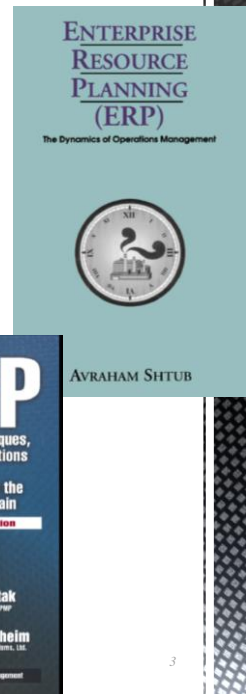
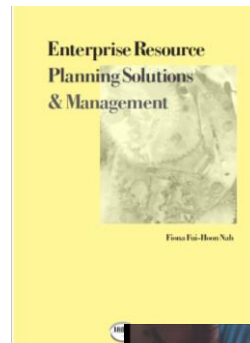
▪ *Course evaluation*

- *Mid-term* *(30%)*
- *Final exam* *(40%)*
- *Quiz* *(5%)*
- *Exercise* *(10%)*
- *ERP Lab* *(15%)*



Course Description (Continued ...)

- **Mid-term session:**
 - Sunday : 8th Azar 1394, 16:30 ~ 18:00
- **Final Exam:**
 - Sunday: 27th Dey 1394, 09:00 ~ 10:30
- **Reference:**
 - Shtub, A., "Enterprise Resource Planning (ERP)- The dynamics of operations management", 2002, Kluwer Academic Publishers
 - Ptak, Carol A., "ERP Tools, Techniques, and Applications for Integrating the Supply Chain", 2004, The CRC Press
 - Fui, F., Nah, H., "Enterprise Resource Planning", 2002, IRM Press



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Course Description (Continued ...)

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- **Reference:**
 - Daniel E. O'leary, "Enterprise Resource Planning Systems Systems, Life Cycle, Electronic Commerce, and Risk", 2000, Cambridge University Press

Enterprise Resource Planning Systems

Systems, Life Cycle, Electronic Commerce, and Risk



Daniel E. O'Leary

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Course Description (Continued..)

- *Contents:*
 - *Enterprise Management*
 - *Operations Management*
 - *The Evolution of ERP Systems: A Historical*
 - *Organizations and organizational structures*
 - *Scheduling*
 - *Purchasing and inventory management*
 - *Marketing considerations*
 - *ERP selection and implementation*

Course Description (Continued..)

- *Contents:*
 - *Enterprise Management*
 - *History of Enterprise Resource Planning*
 - *The Theory of Constraints and ERP*
 - *Sales and Operations Planning*
 - *Buffer Resource Strategy*
 - *Enterprise Resource Management*
 - *Integrating the Supply Chain to Reap the Rewards*
 - *Strategic Sourcing and Procurement*

Enterprise Management

- Contents:

- DBR



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Dynamic Drum-Buffer-Rope approach for production planning and control in capacitated flow-shop manufacturing systems ☆

Patroklos Georgiadis   , Alexandra Politou 

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Enterprise Management

- Contents:

- Sales and Operations Planning

- *In the face of increased requirements for timely reporting to investors, a significant limitation facing every senior level executive is the lack of integration between*
 - *what sales plans to sell,*
 - *what operations plans to make, and*
 - *what the financial plan expects to return.*
- *The sales team develops and manages to the sales forecast.*
- *The operations team develops and manages to a master production schedule (MPS).*
- *Finance develops and manages to the budget.*

In reality, each of these three plans is dependent on the other

Enterprise Management

▪ Contents:

▪ Sales and Operations Planning

- Sales and Operations planning is the process that brings together all the plans for the business
 - Customers,
 - Sales,
 - Marketing,
 - Development,
 - Manufacturing,
 - Sourcing and
 - Financial

into one integrated set of plans.

- This process is accomplished once per month and is reviewed by the senior management team at an aggregate level.
- The process must reconcile all supply, demand and new product at both the detail and aggregate level and tie to the business plan.

Enterprise Management

▪ Contents:

▪ Sales and Operations Planning

- It is the definitive statement of what the company plans to do for the near to intermediate term covering a horizon sufficient to plan for resources and support the annual business planning process.
- Executed properly the Sales and Operations Planning process links the strategic plans for the business with execution and reviews performance measures for continuous improvement.
- With financial simulation it develops into an integrated business management process.
- Sales and Operations Planning is the integrated business planning process that provides management the ability to strategically direct its businesses to achieve competitive advantage on a continuous basis by integrating customer focused marketing plans for new and existing products with the management of the supply chain

Enterprise Management

- **Contents:**

- *Sales and Operations Planning*

- *There are two characteristics of any good planning process that make it necessary:*

- *A plan is not merely one single decision that would translate itself into just one action.*

A typical plan has certain objectives in mind.

In order to achieve those objectives, the plan outlines a set of interlinked decisions that define actions to be taken in a synchronous way through a certain time period.

- *Any planning has to consider the organization as a whole.*

This has to be global in nature, considering all the ramifications to all possible parts of the organization. Such planning is certainly time consuming and requires the involvement of higher level managers

Enterprise Management

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Enterprise Management

- *Contents:*
 - *Sales and Operations Planning*
 - *Sales is fully focused on generating throughput.*
 - *This is where the value of the firm becomes real—finding actual customers who are willing to pay for the products supplied by the firm.*
 - *Operations is focused on delivering the goods.*
 - *It seems that all is needed from Operations is to deliver the customer orders as generated by Sales.*
 - *Material requirements planning (MRP) translates the perceived market demand into material and capacity requirements.*
 - *The determination of the market demand is part of the sales department's responsibility.*
 - *The basic idea that Operations should simply follow what Sales says is ingrained within the MRP approach*

Enterprise Management

- *Contents:*
 - *Sales and Operations Planning*
 - *Inherent in the departmental design of most companies is a major disconnection in the planning process.*
 - *Sales and marketing does its analysis of market needs and forecasts customer demands.*
 - *Manufacturing is scheduling what needs to be built that optimizes the use of their resources.*
 - *Distribution is optimizing its storage locations to provide ready access to those items that experience the highest levels of demand.*
 - *The finance department is attempting to project sources and uses of cash and determine if the enterprise will have sufficient assets to reach its goals.*
 - *An analysis of product costs and overall profit and loss for the enterprise is examined.*
 - *In the development department, the engineers and scientists are working on the next generation of product to bring to the market.*
 - *Each of the functional areas has its own goals that it is attempting to optimize.*

Enterprise Management

- *Contents:*
 - *Sales and Operations Planning*
 - *What is the integrating mechanism that brings together these differently focused areas?*
 - *To be most successful, these diverse groups should be aligned on the same objectives and strategies to meet the overall company's goal.*
 - *The integrating mechanism that provides that alignment is Sales and Operations Planning.*
 - *Dick Ling, the father of Sales and Operations Planning, defines this practice as*
 - *“the integrated business planning process that provides management the ability to strategically direct its businesses to achieve competitive advantage on a continuous basis by integrating customer focused marketing plans for new and existing products with the management of the supply chain.”*

Enterprise Management

- *Contents:*
 - *Sales and Operations Planning*
 - *Sales and Operations Planning provides the linkages between the annual reviews of the strategic plans as detailed by the specific business plans into the operational detail that is reviewed and adjusted on a monthly basis.*
 - *Appropriate performance measurements encourage alignment on the desired business objectives.*
 - *This closed loop process provides feedback on the overall performance of the company in the face of changing markets and competitive factors.*
 - *One thing is for certain; the only thing that is constant is change.*
 - *As time moves on, the rate of change appears to be increasing at an increasing rate!*
 - *Execution of the Sales and Operations Plan could provide a significant competitive advantage for the enterprise*

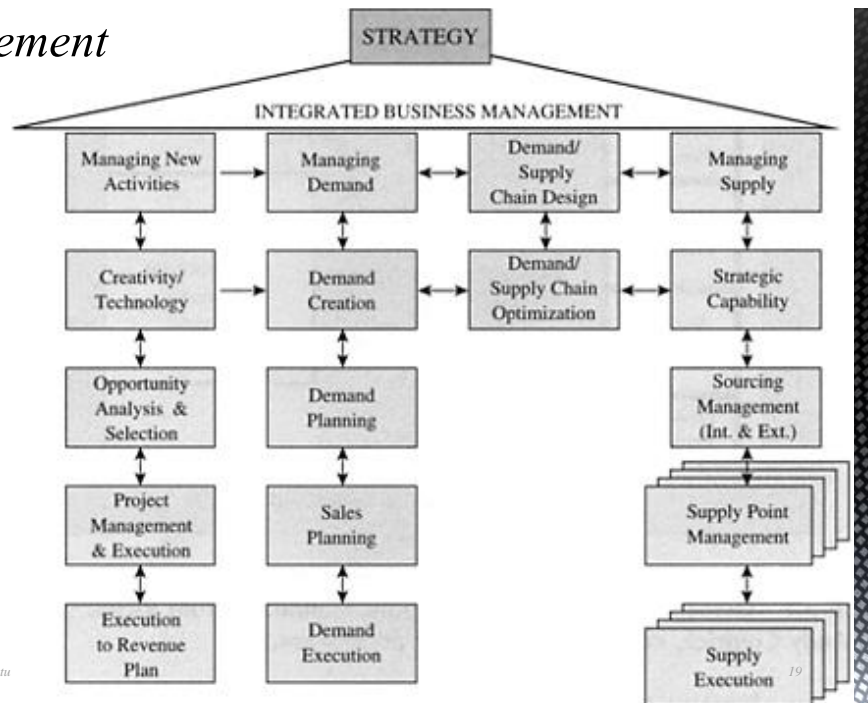
Enterprise Management

- Contents:
 - Sales and Operations Planning



Enterprise Management

- Contents:
 - Sales and Operations Planning



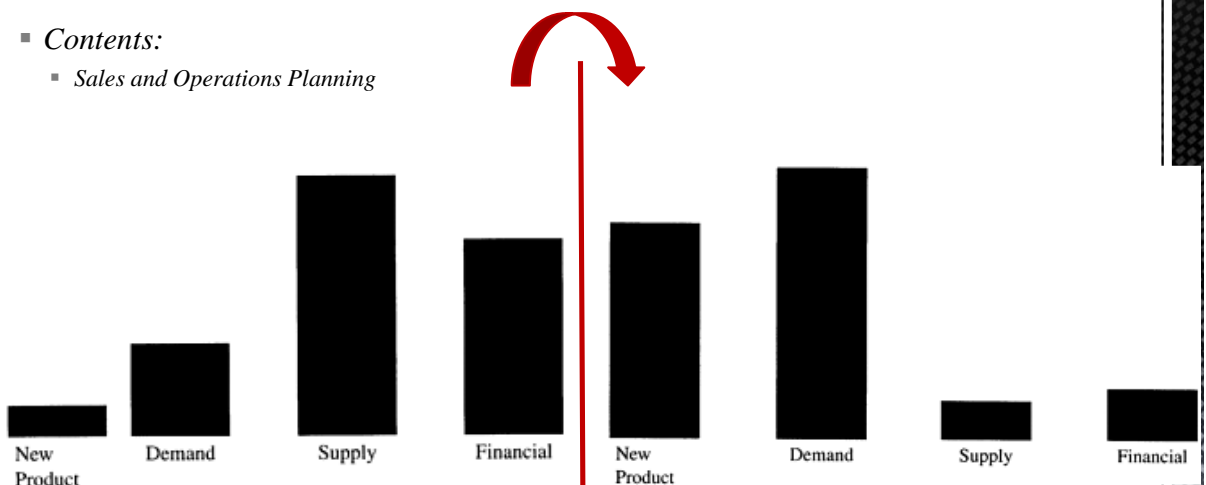
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Enterprise Management

- **Contents:**
 - *Sales and Operations Planning*
 - *In the Sales and Operations Planning process:*
 - *The good news is that S&OP is integrated*
 - *Having this integration provides decision making ability based on accurate facts. In addition, the impact of those decisions can be measured and analyzed*
 - *The bad news is that S&OP is integrated.*
 - *The bad news is that each department can no longer operate as an independent unit without being concerned about the other departments in the company.*
 - *To obtain accurate data for use in the Sales and Operations Planning process it is essential that all departments use the data from the same source.*

Enterprise Management

- **Contents:**
 - *Sales and Operations Planning*



Enterprise Management

- *Contents:*
 - *Sales and Operations Planning*
 - *Transaction systems focus specifically on the supply requirements through the MRP module or production-planning (PP) module.*
 - *This is because the typical company's largest use of cash is toward the purchase of raw materials.*
 - *Change causes disruption to this planning and control.*
 - *Having the ERP system focus on managing these changes provides excellent results for the company.*
 - *Effectively managing change is the real purpose for ERP and provides the largest return on Investment*