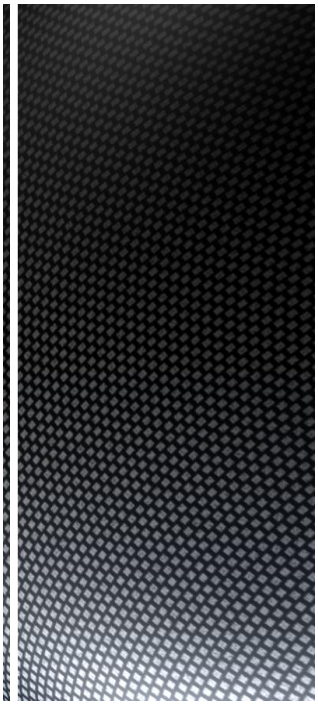


ERP (21-550)

Advanced Manufacturing Laboratory
Department of Industrial Engineering
Sharif University of Technology

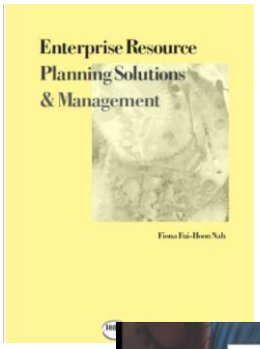
Session #3

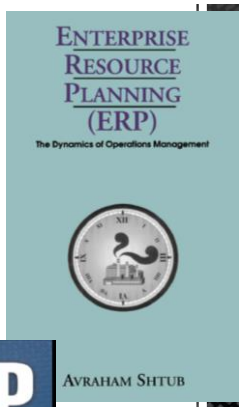
Course Description

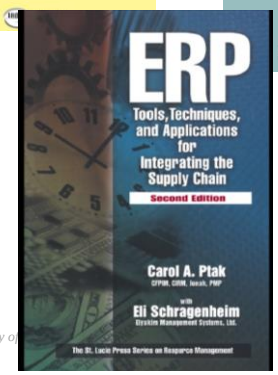
- *Instructor*
  - *Omid Fatahi Valilai, Ph.D. Industrial Engineering Department, Sharif University of Technology*
  - *Email: FValilai@sharif.edu , Tel: 6616-5706*
  - *Website: Sharif.edu/~fvalilai*
- *Class time*
  - *Sunday-Tuesday* *16:30-18:30*
  - *Wednesday* *09:00-12:00*
- *Course evaluation*
  - *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*

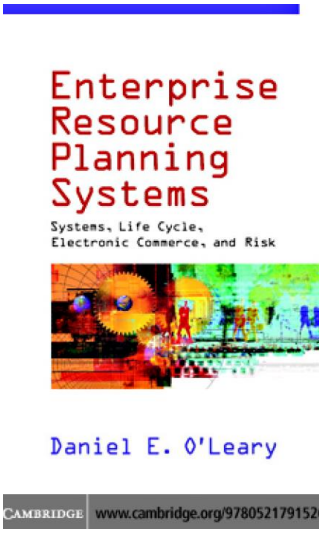






Course Description *(Continued …)*

- *Mid-term session:*
  - *Sunday : 8th Azar 1394, 16:30 ~ 18:00*
- *Final Exam:*
  - *Sunday: 27th Dey 1394, 09:00 ~ 10:30*
- *Reference:*
  - *Daniel E. O'leary, "Enterprise Resource Planning Systems Systems, Life Cycle, Electronic Commerce, and Risk", 2000, Cambridge University Press*



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*

Course Description (Continued..)

- *Contents:*
  - *Enterprise Management*
    - *History of Enterprise Resource Planning*
      - *Just some times ago:*
      - *Simple manual approaches such as order point were effective in managing inventory.*
      - *Companies could afford to keep inventory on hand to satisfy customer demand.*
      - *Labor was the main driver of product cost.*
      - *The focus was based on longer product life cycles and less product variety.*
      - *The normal policy in purchasing was to keep a little of everything on order all the time just to make sure that it never ran out.*
      - *The assumption was that the customer would continue to order what they had before and the future would look very much like the past.*

Enterprise Management

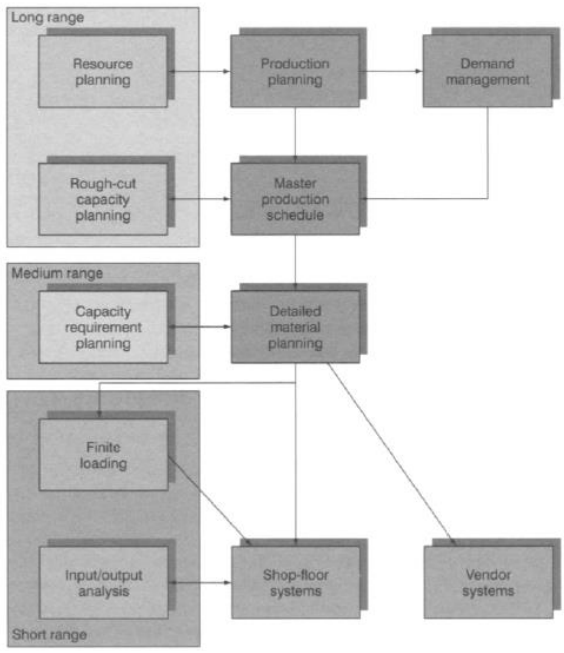
- *Contents:*
  - *History of Enterprise Resource Planning*
    - *As the utilization MRP methodology was learned, something very important was realized:*
      - *Not only did you need all the parts to get the job done, but you also must have sufficient capacity to get the job done.*
      - *The idea of closing the loop with a capacity plan was introduced and closed loop MRP, or big MRP, was born.*

Enterprise Management

- *Contents:*
  - *History of Enterprise Resource Planning*
    - *As the utilization MRP methodology was learned, something very important was realized:*
      - *Now, not only could the materials be calculated, but also, based on those material plan priorities, a capacity plan could be calculated.*
      - *Defined paths for the production process (OPC) were required in addition to the list of materials (BOM) needed for each of the finished parts.*
      - *These paths defined upon which machines the parts would be built so that capacity and load could be planned and scheduled.*

Enterprise Management

- *Closed-loop MRP*



Enterprise Management

- Contents:
  - Closed Loop MRP
    - As the utilization MRP methodology was learned, something very important was realized:

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Finite capacity planning algorithm for semiconductor industry considering lots priority

E.Mhiri*, M.Jacomino*, F.Mangione*
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*** STMicroelectronics, F-38926 Crolles Cedex,*
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Enterprise Management

- Contents:
  - Closed Loop MRP
    - As the utilization MRP methodology was learned, something very important was realized:

Computers & Industrial Engineering 64 (2013) 641–652

Contents lists available at SciVerse ScienceDirect

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journal homepage: www.elsevier.com/locate/caie

Real-time capacity requirement planning for make-to-order manufacturing with variable time-window orders ☆

Yi-Feng Hung*, Chuan-Che Huang, Ying Yeh

Department of Industrial Engineering and Engineering Management, National Tsing Hua University, 101 Kuang Fu Road, Sec. 2, Hsinchu 30010, Taiwan, ROC

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*
    - *Once again the technology improved simultaneously with the identification of the need that as every piece of inventory moved, finances moved as well.*
    - *If a part were received at the factory, not only should the inventory on hand balance increase, but there should also be a corresponding increase in the raw material inventory asset on the financial books.*

~

This is balanced by an increase in the liability level in the accounts payable account.

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*
    - *At every step of the way, as the inventory moves, financial accounting moves with it with balanced credits and debits.*
    - *As a group of parts moves to the shop floor to build the finished product, the raw material asset should decrease and the work in progress asset should increase.*
    - *The labor and overhead charges from the shop floor personnel are also added to the work in progress asset account with an offset to the accounts payable account.*
    - *When the finished part completes its path through the shop, the work in progress asset account goes down and the finished goods asset account increases.*
    - *As the finished product is sold, the finished good asset account decreases and the accounts receivable asset account increases.*

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*
    - *MRPII closed the loop not only with the financial accounting system, but also with the financial management system.*
    - *Now all the resources of a manufacturing company could be visible, planned, and controlled.*

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*

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Int. J. Production Economics 46–47 (1996) 153–164

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economics

Production planning in the case of uncertain individual demand Extension for an MRP II concept

Günther Zäpfel

Institute of Production Management, University of Linz, A-4040 Linz, Austria

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*
    - *In 1985, Dick Ling and others brought Sales and Operations Planning (S&OP) to the management toolbox.*
    - *Ling recognized the critical importance of connecting the financial plan, the operations plan, and the sales plan.*
    - *Significant financial assumptions are made in the budget process about the level of production, sales, and inventory.*
    - *The key operating word in S&OP was that it was better to be roughly right than exactly wrong.*
    - *The demand management process continues to be a challenge today.*

Enterprise Management

- *Contents:*
  - *Manufacturing resource Planning (MRP II)*
    - *Only recently, with the advances in middleware and other technology, does the promise of S&OP appear to be able to achieve reality.*
    - *For the first time a company could have an integrated business system that provided visibility of the requirements of material and capacity driven from a desired operations plan,*
      - *allowed input of detailed activities, translated all this activity to a financial statement, and suggested actions to address those items that were not in balance with the desired plan.*