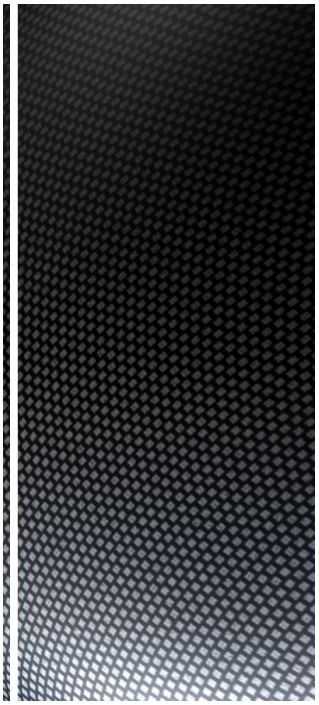
MMIS
(Manufacturing Management Information System)



Department of Industrial Engineering
Sharif University of Technology

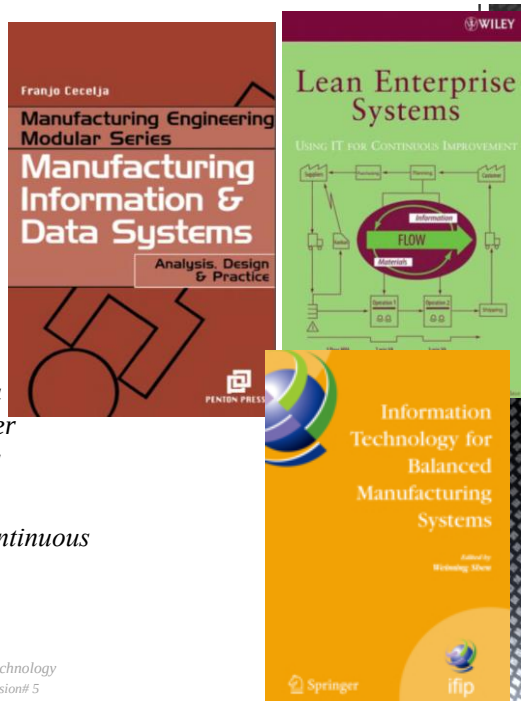
Session# 5

Course Description

- *Instructor*
  - *Omid Fatahi Valilai, Ph.D. Industrial Engineering Department, Sharif University of Technology*
  - *Email: Fvalilai@sharif.edu , Tel: 021-6616-5706*
  - *Website: http://sharif.edu/~fvalilai*
- *Class time*
  - *Saturday* *15:30~18:00*
- *Course evaluation*
  - *Mid-term* *(30%)*
  - *Final exam* *(40%)*
  - *Quiz* *(10%)*
  - *Exercise* *(20%)*

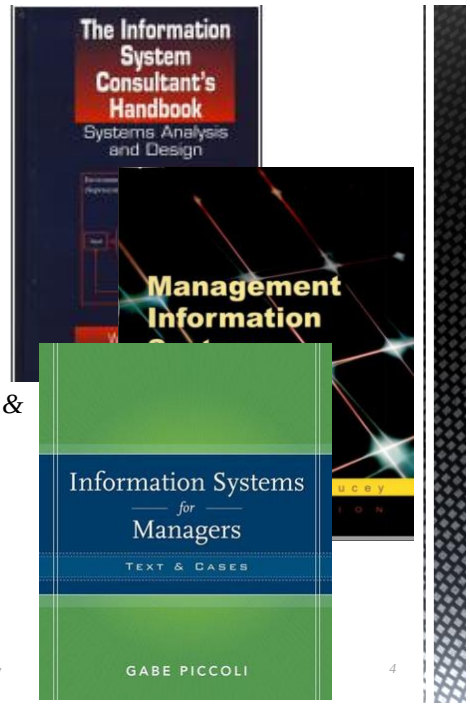
Course Description *(Continued ...)*

- *Mid-term session:*
  - *N/A*
- *Final session:*
  - *N/A*
- *Reference:*
  - *Franjo Cecelja, "Manufacturing Information and Data Systems: Analysis, Design and Practice", 2002, Elsevier*
  - *Shen, Weiming; "Information Technology for Balanced Manufacturing Systems", 2004, Springer*
  - *Steve Bell; "Lean Enterprise Systems: Using IT for Continuous Improvement", 2005, Wiley*



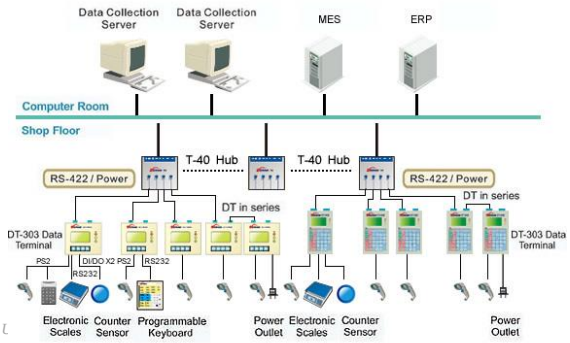
Course Description *(Continued ...)*

- *Reference:*
  - *William S. Davis, David C. Yen, "The information system consultant's handbook: system analysis and design", 2010, Taylor and Francis*
  - *Terence Lucey; "Management Information Systems", 2004, Cengage Learning EMEA*
  - *Gabriele Piccoli; "Information systems for managers: texts & cases ", 2007, John Wiley & Sons Inc*



Shop-floor Data Collection Systems

- *In a manufacturing environment, a large amount of data is generated on the shop floor itself,*
- *Shop-floor data collection represents the way this data is to be collected in order to improve shop-floor performance.*



Shop-floor Data Collection Systems

- *SFDC:*
  - *Collecting data from the factory floor*
  - *Collecting and presenting information on machine status, staff attendance, quality losses, scrap, …*
  - *Networked information system available to management and operators and providing real-time and historical process data*

Shop-floor Data Collection Systems

- *SFDC:*
  - *Finding out exactly what is happening on the factory floor as a starting point for improving manufacturing performance.*
    - *Process yield and scrap;*
    - *Machine performance and usage parameters;*
    - *Operations time;*
    - *Order status;*
    - *Inventory and product traceability;*
    - *Quality data;*
    - *Personnel.*

Shop-floor Data Collection Systems

- *Rationale for SFDC:*
  - *focus on the manufacturing process, in order to improve utilization, throughput and scheduling*
  - *focus may be on the product in order to provide traceability and ensure high quality.*

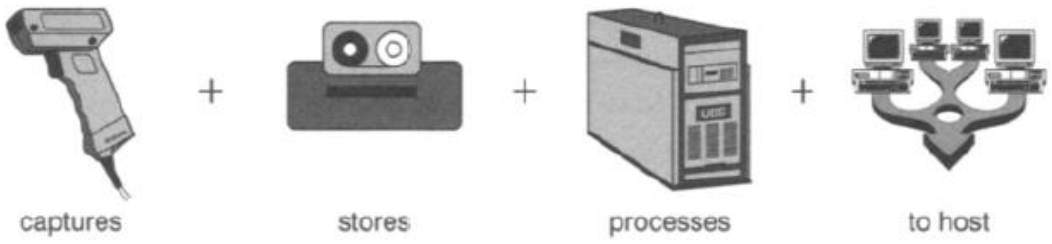
Users	Typical Needs	Timeliness
Operator	Machine data	Seconds
Team leader	Work tracing	Minutes
Line manager	Throughput, shift reports	Hours
Engineering	Yield, machine performance	Days
Production planning	Inventory, work tracing	Days/weeks
Finance	Usage	Weeks/months
Senior management	Management data	Months

Shop-floor Data Collection Systems

- *Methods of SFDC:*
  - *The simplest, and cheapest, is paper recording and manual storage.*
  - *The second method is paper recording and input into an MRP system.*
    - *Although this is cheap to perform, it is labor intensive, resulting in a time lag, low accuracy and is also difficult to analyze.*
  - *The next option is to use shop-floor terminals linked to an MRP system.*
    - *Although this can only be used for manpower and material tracking and also has a time lag, it has better accuracy than the previous method.*
  - *Finally, dedicated shop-floor data collection systems can be implemented that are very flexible, very accurate, and allow the possibility of providing information in real time.*

Shop-floor Data Collection Systems

- *Computerized SFDC:*
  - *A computerized data collector is defined as an independent entity that captures, stores, processes and forwards data to a host computer*



Shop-floor Data Collection Systems

- *Computerized SFDC:*
  - *A computerized data collector is defined as an independent entity that captures, stores, processes and forwards data to a host computer*
  - *There are four basic features of a computerized data system:*
    - *Means of inputting data;*
    - *Memory capacity for storing data;*
    - *Independent processing capability;*
    - *Data communication to a host system*

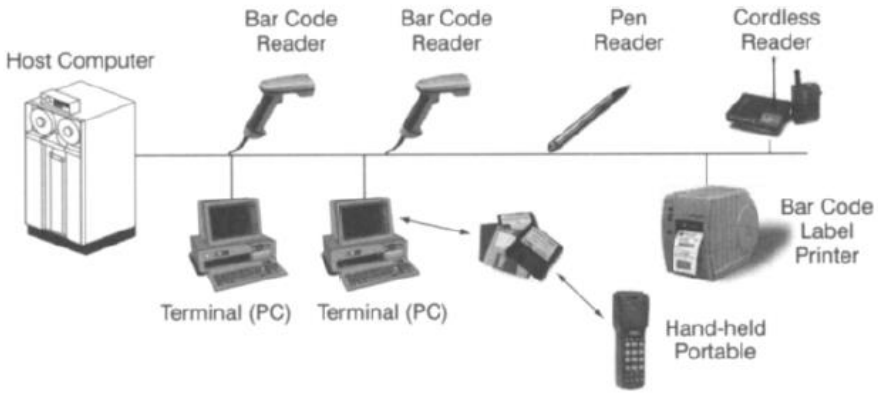
Shop-floor Data Collection Systems

- *Computerized SFDC:*
  - *A computerized data collector is defined as an independent entity that captures, stores, processes and forwards data to a host computer*
  - *Technologies:*

Function	Technologies
Collection	Keyboard input, bar code, cards, PLC links, device controllers links
Storage	RAM, bubble memory at source, floppy/hard disk, centralized storage
Processing	At terminals level, PCs, client/server, mainframes
Distribution	RS232, local area networks, radio link

Shop-floor Data Collection Systems

- *Computerized SFDC:*
  - *A computerized data collector is defined as an independent entity that captures, stores, processes and forwards data to a host computer*



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