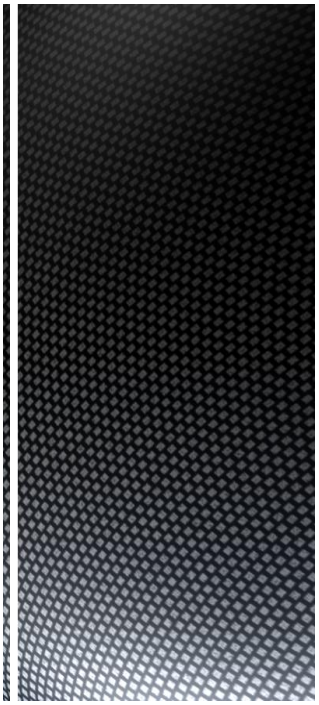
MMIS
(Manufacturing Management Information System)



Department of Industrial Engineering
Sharif University of Technology

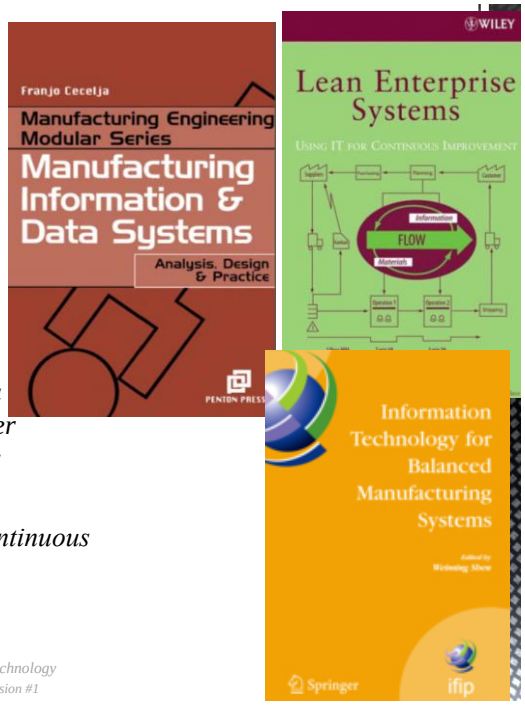
Session# 1

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%)*

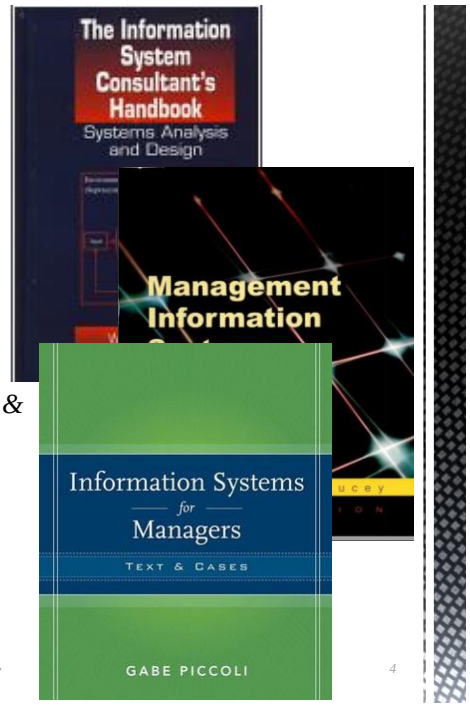
Course Description *(Continued ...)*

- *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*

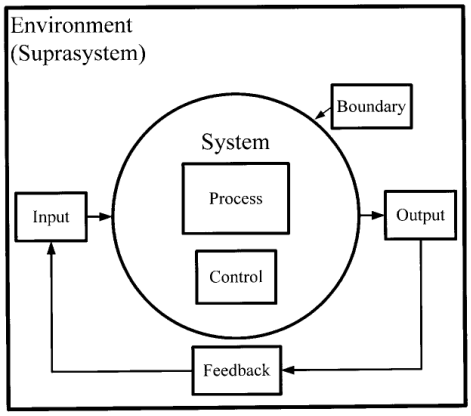


Foundation of Information Systems (IS)

- *Data & Information:*
  - *Data is a raw fact and can take the form of a number or statement such as date or a measurement .*
  - *Information is the data which have been processed so that they are meaningful.*
    - *Information needs the process(es) which collect(s) data and subject them to transformation process.*

Foundation of Information Systems (IS)

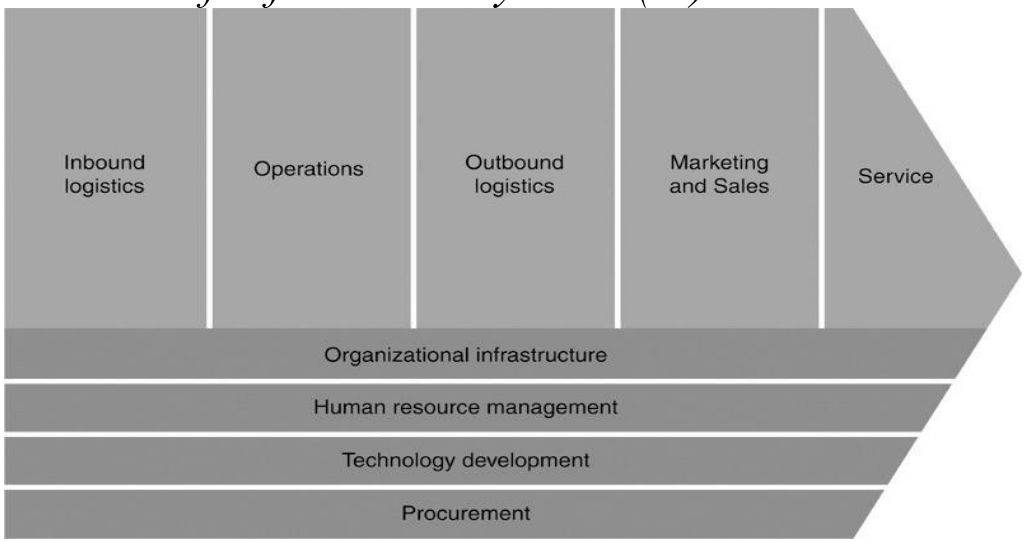
- *Information system (IS):*
  - *is a set of hardware, software, data, human, and procedural components intended to provide the right data and information to the right person at the right time.*



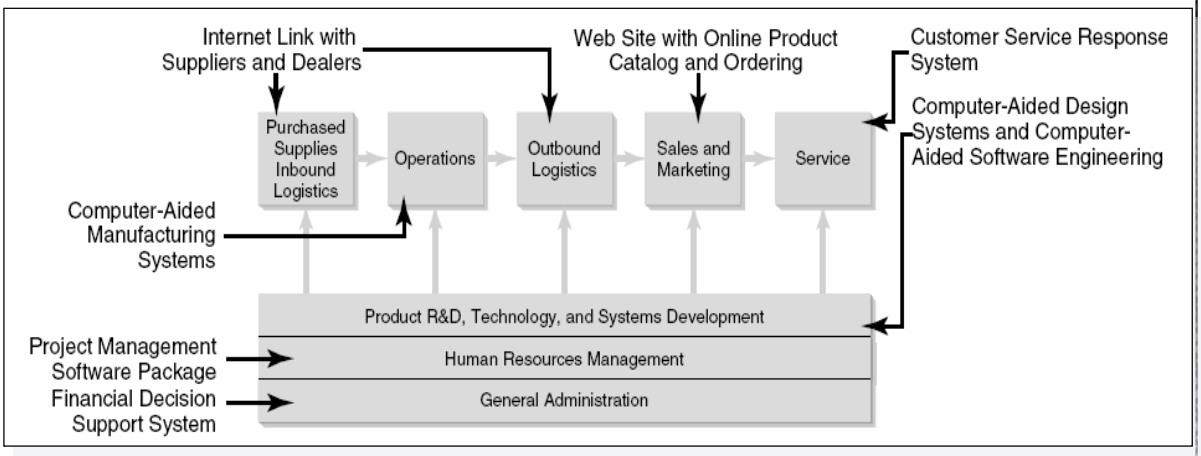
Foundation of Information Systems (IS)

- *Information system (IS):*
  - *Of the most important role of the Information systems is to provide information for management*
  - *This management enables decision making process which ensure that the organization is controlled*
  - *The organization will be in control if it is meeting the needs of the environment*

Foundation of Information Systems (IS)



Foundation of Information Systems (IS)



Foundation of Information Systems (IS)

- *Information systems may be divided into two categories of systems:*
  - *The Ones that support an organization's day-to-day business activities*
  - *Systems that support managerial decision making.*

Foundation of Information Systems (IS)

- *Types of Information Systems (IS):*
  - *Transaction Processing System (TPS) or Operations Information Systems (OIS)*
  - *Management Information Systems (MIS)*
  - *Decision Support System (DSS)*
    - *Group Decision Support System (GDSS)*
    - *Executive Support Systems (ESS) or Executive Information System (EIS)*

Foundation of Information Systems (IS)

- *Transaction Processing System (TPS) or Operations Information Systems (OIS)*
  - *TPSs support the routine, day-to-day activities that occur in the normal course of business.*
  - *TPSs often perform activities related to customer contacts – like order processing and invoicing.*
  - *The primary objective of any TPS is to capture, process, and store transactions and to produce a variety of documents related to routine business activities.*
  - *One objective of any TPS is error-free data input and processing.*

Foundation of Information Systems (IS)

- *Management Information Systems (MIS)*
  - *Management information systems (MIS) can often give firms a competitive advantage by providing the right information to the right people in the right format and at the correct time.*
  - *The primary purpose of an MIS is to help an organization achieve its goals by providing managers with insight into the regular operations of the organization so that they can*
    - *Control,*
    - *Organize, and*
    - *Plan*

    more effectively and efficiently.
  - *MIS provides managers with information, typically in reports, that support effective decision making and provides feedback on daily operations*

Foundation of Information Systems (IS)

- *Management Information Systems (MIS) perform the following functions:*
  - *Provide reports with fixed and standard formats (hard-copy and soft-copy reports)*
  - *Use internal data stored in the computer system. MIS reports use primarily internal sources of data that are contained in computerized databases.*
  - *Allow end users to develop their own custom reports*

Foundation of Information Systems (IS)

- *Management Information Systems (MIS) are used in processes like:*
  - *Financial Management Information Systems*
  - *Manufacturing Management Information Systems*
  - *Marketing Management Information Systems*
  - *Human resource Management Information Systems*

Foundation of Information Systems (IS)

- *Decision Support System (DSS):*
  - *Decision support systems offer the potential to generate higher profits, lower costs, and better products and services.*
  - *today's managers at all levels are faced with less structured, non routine problems, but the quantity and magnitude of these decisions increase as a manager rises higher in an organization.*
  - *A DSS gives the decision maker a great deal of flexibility in computer support for decision making.*
    - *What-if analysis*
    - *Goal-seeking analysis*
    - *Simulation*

Foundation of Information Systems (IS)

- *Decision Support System (DSS):*
  - *Group Decision Support Systems (GDSS)*
    - *A group decision support system (GDSS), also called group support system and computerized collaborative work system, consists of most of the elements in a DSS, plus GDSS software needed to provide effective support in group decision-making settings.*
    - *Many GDSSs allow anonymous input, where the person giving the input is not known to other group members.*
    - *One key characteristic of any GDSS is the ability to suppress or eliminate group behavior that is counterproductive or harmful to effective decision making.*
    - *GDSS software, often called groupware or workgroup software helps with joint work group scheduling, communication, and management.*

Foundation of Information Systems (IS)

- *Decision Support System (DSS):*
  - *Executive Support System (ESS) or Executive Information System (EIS)*
    - *ESS is a specialized DSS that includes all hardware, software, data, procedures, and people used to assist senior-level executives within the organization.*
    - *ESSs give top executives a means of tracking critical success factors.*
    - *ESSs are typically tailored to individual executives; DSSs are not tailored to particular users.*
    - *An ESS allows executives to drill down into the company to determine how certain data was produced.*
    - *ESSs also support strategic planning. Strategic planning involves determining long-term objectives by analyzing the strengths and weaknesses of the organization, predicting future trends, and projecting the development of new product lines.*

Foundation of Information Systems (IS)

- *Hardware:*
  - *Hardware describes the physical components of a computer system which can be categorized as input devices, a central processing unit, internal and external memory and output devices.*
  - *Input devices are used to capture or enter data into the computer.*
  - *The central processing unit (CPU) performs processing by carrying out instructions given in the form of computer programs.*
  - *Internal memory is used as a temporary means of storage data and instructions while external memory provides a means of storing data and programs outside of the computer. Output devices translate the results of processing into a human-readable form.*

Foundation of Information Systems (IS)

- *Software:*
  - *Software can be defined as a series of detailed instructions that control the operation of a computer system and exists as programs which are developed by computer programmers.*
    - *Systems software: Systems software manages and controls the operation of the computer system as it performs tasks on behalf of the user. Systems software consists of three basic categories:*
      - *Operating systems,*
      - *Software development programs and*
      - *Utility programs.*
    - *Application software: Application software can be defined as a set of programs that enable users to perform specific information-processing activities. Application software can be divided into two broad categories:*
    - *General-purpose and*
    - *Application-specific.*

Foundation of Information Systems (IS)

- *Database Systems:*
  - *A database is a collection of related files.*
  - *Databases can exist on paper, for example a telephone directory.*
  - *A computer-based database offers the advantage of powerful search facilities which can be used to locate and retrieve information.*
  - *An electronic database provides facilities for users to add, amend or delete records as required.*
  - *Indexing features mean that the same basic information can be stored under a number of different categories. This provides great flexibility and allows users to locate, retrieve and organize information as needed.*

Foundation of Information Systems (IS)

- *Database Systems:*
  - *The data in an electronic database is organized by fields and records.*
  - *A field is a single item of information, such as a name or a quantity.*
  - *A record is a collection of related fields and a table is a collection of related records.*
- *Database Software*
  - *The majority of database programs support the creation of relational databases containing several linked tables.*
  - *When using database software data is retrieved from a database using what is called a query.*

Foundation of Information Systems (IS)

- *Database Software*
  - *The majority of database programs make use of a special structured query language (SQL) in order to create queries.*
  - *Structured query language (SQL) provides a standardized method for retrieving information from databases.*
  - *SQL programs are created by producing a series of statements containing special key words.*

Foundation of Information Systems (IS)

- *Networks:*
  - *A network is a combination of devices connected to each other through communication links to provide the channels for information to flow continuously between people.*
  - *Networks are important to an organization because they help a business connect with its customers, suppliers and collaborators*
- *Network components:*
  - *Servers*
  - *End-user computers or terminals*
  - *Telecommunications processors*
  - *Middleware*

Foundation of Information Systems (IS)

- *E-business:*
  - *E-business involves several key activities including improving business processes, enhancing communications and providing the means to carry out business transactions securely.*
  - *E-business is part of a broader Internet economy which encompasses all of the activities involved in using the Internet for commerce.*
  - *The Internet economy is made up of the following layers:*
    - *Internet Infrastructure*
    - *Internet Applications Infrastructure*
    - *Internet Intermediaries*
    - *Internet Commerce*

Foundation of Information Systems (IS)

- *E-Commerce:*
  - *E-Commerce can be described as using technology to conduct business transactions, such as buying and selling goods and services.*
  - *E-Commerce encompasses a wide range of associated activities, such as after-sales support and even logistics.*
  - *E-commerce activities can be broken down into five basic types:*
    - *B2B*
    - *B2C*
    - *B2G*
    - *C2C*
    - *M-Commerce*