# Systems Analysis and Design

## Lecture -1-

**General Overview**

- **Introduction to Systems Analysis and Design**

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2023-2024



# Systems Analysis and Design

## Lectures Timetable

- 4 hrs/Week

**Tuesday** : 12:30 – 01:30
**Wednesday:** 12:30 – 01:30
**Thursday:** 8:30 – 10:00
10:30 – 12:00

- Bring notebook and a pen to take notes!

# Systems Analysis and Design

## Assessment

**Coursework (**% 40**)**

-**Second Semester**

- Exam % 20
- Quiz & Daily Activities % 10
- Homework % 5
- Report + Assignment % 5

**Final Exam (**% 60**)**

**Your total mark:** 100%

- Coursework : % 40
- Final exam : % 60



# Systems Analysis and Design

## Resources for study


1. Dennis, A., Wixom, B. H., and Roth, R. M. (2012): *Systems Analysis and Design*. 5th edn. Hoboken: John Wiley & Sons, Inc.
2. Dennis, A., Wixom, B. H., Tegarden, D. (2005): *Systems Analysis and Design with UML Version 2.0 An Object-Oriented Approach*. 2nd edn. Hoboken: John Wiley & Sons, Inc.
3. Kendall, K. E. and Kendall, J. E. (2011): *System Analysis and Design*. 8th edn. New Jersey: Pearson Education, Inc.
4. Other relevant papers, websites and books.

# Systems Analysis and Design

## Syllabus

- Introduction to System Analysis and Design.
- SDLC (System Development Life Cycle).
- The Planning phase
- Apply Planning Phase On A system.
- Project Management.
- Analysis phase.
- Apply Analysis phase On A system.
- Requirements Gathering Techniques (1).
- Requirements Gathering Techniques (2).
- Introducing the Design Phase
- Apply Analysis Design On A system.
- The Architecture Design.
- The User Interface Design.
- Program Design
- Data Management Layer Design:



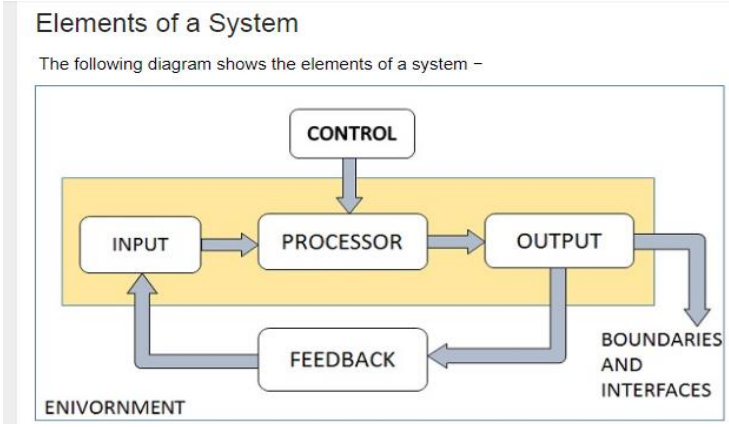
# Systems Analysis and Design

## Some topic related concepts:-

- ***A system:*** can be defined as a collection of components that work together to achieve some certain objectives. It is composed of five parts: *Input, processing, output. Control and feedbacks.*

# Systems Analysis and Design

## Some topic related concepts:-






# Systems Analysis and Design

## Some topic related concepts:-

- ***System analysis:-*** It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.
- ***System Design:-*** the process of defining the architecture, components, and data of a system to satisfy specified requirements, it is most effective when more than one solution can be proposed.
- ***System Analyst:-*** The person who studies and analyzes a system.

# Systems Analysis and Design

## Some topic related concepts:-

- ***Information System*:-** Set of people, processes, applications and data working together to enable the day-to-day business and support the problem solving and decision making needs for users and management.
- ***Information Technology*:-** Combination of hardware, telecommunication and software that enable the creation and operation of an information system.



# Outline

- **Importance** of Systems Analysis
- **Roles** of the system analyst
- **Types** of Information System:-
  1. Transactional Processing System (TPS)
  2. Management Information System (MIS)
  3. Decision Support System (DSS)
  4. Executive Support System (ESS)

# Why System Analysis and design is important?

1. Tries to understand human needs to analyze, process, transform, store data and output information in the context of a particular organization.
2. Try to build or improve information systems.?How?
3. SA & D include users in every step of building systems which lead the users to have an idea about the new system when it is installed.



# Why System Analysis and design is important?

4. It helps saving costs of system building because every step is well thought-out.
5. Lead to a better understanding of the organizational environment such as political and cultural feature.

## What are the Qualities of the System Analyst

The system analyst has **many roles** inside companies or organizations. Such as :-

1. A successful system analyst is a good problem solver. How?
2. A system analyst must also be a good communicator.
3. A system analyst must have enough programming experience and knowledge of technology.



## What are the Qualities of the System Analyst

4. System analyst is someone who is motivated and passionate about his or her job.
5. System analysts must be professional and possess strong work ethics to be able to form robust relationship with their clients.
6. Understand both human and computer system well to be able to work with them for producing useful and usable information systems.

# Types of System Analyst

1. System analyst
2. Business analyst
3. Requirement analyst
4. Infrastructure analyst



# Types of Information System

- IS has been developed for different purposes, it depends on the **users need** and **businesses** in a company or organization.
- There are **four types of IS**
  1. Transactional Processing Systems (TPSs)
  2. Management Information Systems (MISs)
  3. Decision Support Systems (DSSs)
  4. Executive Support Systems (ESSs)

# Types of Information System

## 1- Transactional Processing Systems (TPS):-

- Transaction can be any activity inside a company or organization.
- Perform the everyday transactions of an organization.
- Capture, process, collect, edit and store large amount of data about business transactions.
- Also known as operational system or real time processing.



# Types of Information System

## 1- Transactional Processing Systems(TPSs):-

**Advantages:-**

- Speed up the transactions.TPSs works on **Databases** and large amounts of data can be processed and retrieved in a very short time compared to the time it would take if humans did the job.

- Keep managers aware of the day-to-day work, because it can produce daily reports which make the business process faster.

# Types of Information System

## 1- Transactional Processing Systems(TPSs):-

**Examples:-**

1. E-banking system
2. Hotel reservations systems
3. Payroll systems
4. Inventory systems



# Types of Information System

## 2- Management Information Systems (MISs):-

- Take the information generated mainly by transaction processing systems and convert it into aggregated and more meaningful forms.
- Their **aim** is to support managers by analyzing information and make decisions.
- All MISs include TPSs (which means that MISs depend on databases too in their work).

# Types of Information System

## 2- Management Information System (MIS):-

- The information is saved in a shared database which can be accessed by managers.
- MISs are used by lower-level managers.
- E.g. Periodic tables, reports…



# Types of Information System

## 3- Decision Support Systems (DSSs):-

- They depend on databases like MISs and TPSs for their works.
- They are used for making **strategic decisions** while TPSs are used for making day-to-day business decisions.
- DSSs are used by upper-level managers.

# Types of Information System

## 3- Decision Support Systems (DSSs):-

- DSSs help users to make long-term business decisions, because they are more suitable to specific user needs and provide graphs and mathematical simulations to help the process of decision making.



# Types of Information System

## 4. Executive Support Systems:-

- Used by executives in an organization to make strategic decisions.
- They are used for making decisions based on a larger amount of knowledge not only of what happens inside the organization, but also what happens outside of it E.g. the economic status, competitive between companies.

# Types of Information System

## 4. Executive Support Systems:-

- ESSs rely on the information generated by TPSs and MISs.
- It helps users to address unstructured decision problems.
- It belongs to a higher level compared to DSSs because they are used by ~~senior~~ executives.



# Hierarchy of Information System Types

Source: http://www.chris-kimble.com/Courses/World_Med_MBA/Four-Level-Pyramid-model.png