**UNIT**

**UNIT 4:** *SYSTEMS DESIGN*

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## SYSTEMS DESIGN

Unit 4 covers the systems design phase of the system development life cycle (SDLC). It begins with the overview of systems design, which covers defining what format and the system design considerations are. Lesson 2 tackles the user interface design and featured the different user interface guidelines, styles, and reviews.

Lesson 3 features an in-depth topic about input design objectives, specifically input and data registration methods, reducing the number of inputs, designing attractive data input screens, verification checks, original documents, and effective input control. Discussion of topics such as data-entry objectives, the purpose of coding design, the code design principles, and the different types of codes are discussed in detail in lesson 4.

Designing output is the topic in lesson 5. In this topic, the reports' design is covered in detail. Lesson 6 concludes the unit 4, which demonstrates the concepts of database design, the entity-relationship diagram, and the different processes on how to transform ERD to relations.



# ~~LESSON 1:~~

## SYSTEMS DESIGN OVERVIEW

OBJECTIVES:

#### At the end of this lesson, the student will be able to:

* Explain the systems design concept;
* Identify the different design activities; and
* Identify the different design considerations.

##### Duration: 1 hour

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**UNIT 4:** *Systems Design*

What is System Design?

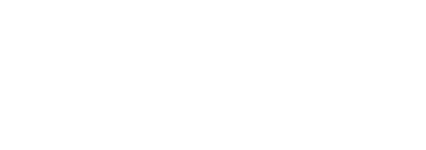
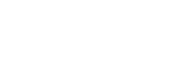
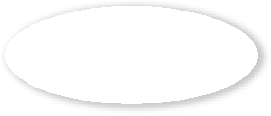
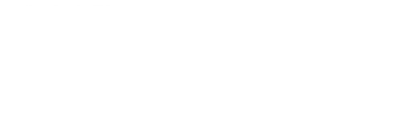
System Design refers to a process used to describe, organize, and structure a system's components at both the architectural and a detailed level to allow the construction of the proposed system. The design phase describes, organizes, and structures to focus on the construction of a new system.

System design is a process of identifying in detail how components of an information system should be implemented. It determines HOW the system should do it, and it is a usable representation of a solution. The design focuses on understanding how a solution might realize value if it is built.

To get an understanding of the components of design, we must answer three questions:

* 1. *What is used for input to the design?*
  2. *How is the design done?*
  3. *What are the final design documents?*

System design is similar to blueprints necessary to build a house. The output derived from the analysis phase, which is the logical design, will be used as the input for the systems design phase. Figure 4.1 illustrates the flow from analysis to design, showing the distinct objectives of each phase.



**Analysis Models and Documents**

**Design Phase**

Objectives:

System design is necessary to define the overall components of the system

**Analysis Phase**

Objectives: To understand Business events and processes

System activities and processing requirements. Information storage requirements

**Figure 4.1. Analysis Objectives to Design Objectives**

Source: (Systems Design - ust-comp2-com. (n.d.). Retrieved August 25, 2020, from https://sites.google.com/site/ustcomp2com/7-systems-design)

System design is also known as the physical design of information systems. Based on system analysis, it converts the logical model that reflects user needs in the system analysis stage into a physical model of the information system that can be implemented specifically to solve the "how" of the information system problem. It defines the system outputs, inputs, interfaces, and data modeling.

**UNIT 4:** *Systems Design*

### Systems Design Activities

As discussed by (Shelly & Rosenblatt, 2012), systems design activities typically performed in a four-step process.

1. Review system requirements. Study the system requirements document carefully to understand the logical design.
2. Design the system. Design an overall user interface output and input issues, determining how data will enter the system, and creating the system architecture.
3. Create a system design specification. Develop a systems design specification that describes and documents the proposed design.
4. Deliver a management presentation. Develop a progress report, a budget update, and a timetable for system implementation and operation.

### Systems Design Considerations

Before designing a system, consider the following:

##### User Considerations

* 1. “Consider user's characteristics, future user, system, and organizational needs” (Shelly & Rosenblatt, 2012).
  2. Provide flexibility.

##### Data Considerations

1. Enter data where and when it occurs.
2. Verify data when it is entered.
3. Use automated data entry methods.
4. Controlling access for data entry.
5. Enter data only once.

##### Architecture Considerations

1. Use a modular design.
2. Design independent module’s that perform a single function.