INTRODUCTION TO SYSTEM ANALYSIS AND DESIGN AND ITS PHASES

Subject: <u>System Analysis and Design</u>

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🎯 Learning Objectives

After studying this topic, students will be able to:

- **Understand the concept of System Analysis and Design**

- **Explain the need of SAD**

- **Describe phases of SDLC**

- **Understand the importance of structured system development**

Introduction to System Analysis and Design (SAD)

System Analysis and Design (SAD) is a systematic approach used to analyze business problems and design appropriate information systems to solve those problems effectively.

It focuses on:

- Studying existing systems

- Identifying problems

- Gathering requirements

- Designing improved systems

SAD plays a major role in the **Software Development Life Cycle (SDLC)**.

Need of System Analysis and Design

System Analysis and Design is required to:

- Improve efficiency of organization

- Reduce operational cost

- Avoid system failure

- Ensure proper planning

- Develop user-friendly systems

Without proper analysis, systems may fail or not meet user requirements.

Phases of System Analysis and Design (SDLC Phases)

System development follows a structured process called SDLC.

1. Planning Phase

- Identify problem

- Define objectives

- Estimate cost and time

- Resource planning

2. Feasibility Study

This phase checks whether the system is possible or not.

Types of feasibility:

- Technical feasibility

- Economic feasibility

- Operational feasibility

- Legal feasibility

- Schedule feasibility

3. **Requirement Analysis**

- Collect user requirements

- Prepare Software Requirement Specification (SRS)

- Identify functional and non-functional requirements

4. **System Design**

This phase converts requirements into system design.

Two types:

- Logical Design

- Physical Design

Tools used:

- Data Flow Diagram (DFD)

- Entity Relationship Diagram (ERD)

5. **Development (Coding)**

- Convert design into programming code

- Use suitable programming language

- Follow coding standards

6 . <u>Testing</u>

Types of testing:

- Unit Testing

- Integration Testing

- System Testing

- User Acceptance Testing

7. <u>Implementation</u>

- Install the system

- Train users

- Data migration

8. <u>Maintenance</u>

- Correct errors

- Update system

- Improve performance

<u>SDLC Cycle</u>

Planning → Feasibility → Analysis → Design → Coding → Testing → Implementation → Maintenance

Conclusion

System Analysis and Design ensures that information systems are developed in a structured, efficient, and reliable manner.

Proper implementation of SDLC phases reduces risk, improves quality, and increases user satisfaction.