

**Information System Design
BEG270CO**

Year: II

Semester: III

Teaching Schedule Hours/Week			Examination Scheme				
Theory	Tutorial	Practical	Internal Assessment		Final		Total
3	1	-	Theory	Practical	Theory	Practical	100
			20	-	80	-	

Course Objective: To provide the basics of designing the information systems.

Course Contents:

- 1. OVERVIEW OF INFORMATION SYSTEM (4hrs)**
 - a. Types of information: operational, tactical, strategic
 - b. Why information systems
 - c. Role of Information system
 - d. Organizations and Information systems
 - e. Major types of systems in organizations
 - f. Managers decision making and information systems
 - g. System Analysis and Design
 - h. System Development Life cycle (SDLC)

- 2. STRUCTURING SYSTEM REQUIREMENTS :Process Modeling (5hrs)**
 - a. What is Process Modeling
 - b. Introduction to Data flow diagrams (DFD)
 - c. Data flow diagramming rules
 - d. Context Diagrams
 - e. Using Data Flow Diagrams in the Analysis Process

- 3. STRUCTURING SYSTEM REQUIREMENTS :Logic Modeling (5hrs)**
 - a. Logic Modeling
 - b. Decision table
 - c. Decision tree
 - d. Structured English
 - e. Deciding among Structured English, Decision table and Decision tree

- 4. STRUCTURING SYSTEM REQUIREMENTS: Conceptual Data Modeling (4hrs)**
 - a. Conceptual Model
 - b. Introduction to ER Model
 - c. Conceptual data modeling and ER Model
 - d. Role of CASE in conceptual data modeling

- 5. OBJECT ORIENTED ANALYSIS AND DESIGN (OOAD) (5hrs)**
 - a. Object Oriented Development Life Cycle
 - b. Difference between Object Oriented Development Life Cycle and Traditional SDLC
 - c. Unified Modeling Language (UML)

- d. Use Case Modeling
- e. Object Modeling: Class Diagrams
- f. Dynamic Modeling: State Diagrams, Sequence Diagrams
- g. Analysis vs Design

6. DESIGNING DATABASES: Logical Data Modeling (4hrs)

- a. Logical Database Design
- b. Relational Database Model
- c. Concept of Normalization (1NF, NF, 3NF)
- d. Merging Relations

7. DESIGNING PHYSICAL FILES AND DATABASES (4hrs)

- a. Physical File and Database Design
- b. Designing Fields
- c. Designing Physical Records
- d. Designing Physical Files
- e. Designing databases

8. STRUCTURE CHART AND MODULAR DESIGN (6hrs)

- a. Structure Chart
- b. Transaction Centered Designs
- c. Transform Central Designs
- d. Transform Analysis
- e. Modularity, Benefits of Modular Design
- f. Coupling
- g. Cohesion

9. IMPLEMENTATION AND MAINTENANCE (5hrs)

- a. System Implementation
- b. Software Application Testing
- c. Types of Testing
- d. Installation
- e. Documenting the System
- f. Training and Supporting User
- g. Project close down
- h. Maintaining Information System

10. DESIGNING DISTRIBUTED SYSTEM (3hrs)

- a. Distributed systems for LAN
- b. File Server and Client Server Architecture
- c. Managing data in Distributed System
- d. Alternative Designs for Distributed Systems

Reference Books:

1. Jeffrey A. Hoffer, Joey F. George, Joseph S. Valarich, "Modern Systems Analysis & Design", Pearson Education, Second Edition
2. Whitten, Jeffrey L., 3rd Edition, "Systems Analysis and Design Methods"