AIT 213   **SYSTEM ANALYSIS AND DESIGN**   **3 (2+1)**

Objective(s)
Students should acquire an overview of principles, methods and techniques of systems development, and gather experience from a development project in which a specific development method is used.

Unit I
Introduction
Categories of Information Systems (OAS, TPS, MIS, DSS), Role of a System Analyst, Software Process Models (Linear v/s. Prototyping v/s. RAD models), Introduction to Modern Information Systems

Unit II
System Analysis
Preliminary Investigation, Feasibility Study (Technical, Economical, Operational), Fact-finding Techniques (Interview, Questionnaire, Record Scanning, Observation), Specification Tools (Decision Tree, Decision Table, Data Flow Diagram of various levels, Data Dictionary, Structured English), Project Scheduling, CPM, PERT and Gannt.
Software Development Life Cycle Models: Waterfall Model, Iterative Model , V-Model , Spiral Model, Big Bang Model, Prototyping Model

Unit III
System Design
Design Objectives, Input Design, Output Design, UI Design, Architecture and Component Level Design, File Organization, Database Design, Input Validation, CASE tools, Backup and Recovery Design.

Unit IV
Post Design
OOP v/s. POP, Software versioning, Software Testing, Documentation, Training (In-House, Outsourced, CBT), Software Licensing (Proprietary v/s. Free and Open Source Software), Disaster Recovery and Business Continuity Planning, Zero Day Attacks

Unit V
Case Study
Complete Case Study of a Standalone, Client - Server or Web Based Information System e.g. Shopping Cart, e-Governance., Online Reservation, Accounts and Inventory Maintenance, Rental Library etc. with appropriate documentation and modeling of Questionnaires, Interviews, DFD, E-R, Data Dictionary by using tools such as x-Dia, MS Visio, MS Project.

Practical(s)

1. Designing a questionnaire
2. Preparing SRS and presenting
3. Designing multilevel DFDs.
4. Designing E-R Diagrams and Data Dictionaries
5. Writing Sample Help Documents.

Reference Book(s)

1. Analysis and Design of Information Systems, James A. Senn, McGraw-Hill.
2. Modern Systems Analysis and Design 5th Edition, Hoffer, Pearson.
3. System Analysis and Design - Prof. S. Parthasarathy, Prof. B.W..Khalkar
4. System Analysis and Design - E.M.Awad
5. System Analysis and Design – DennisWixom
6. Systems Analysis and Design By Alan Dennis, Barbara Haley Wixom, Roberta M. Roth
7. Systems Analysis and Design: Techniques, Methodologies, Approaches, and Architecture By Roger Chiang