

SOFTWARE ENGINEERING

UNIT 1: System concepts, integrated systems, sub-systems.

UNIT 2: Role of Systems analysis and others in system development.

UNIT 3: General phases of System Development Life Cycle Study, Requirements Capturing, Detailed Systems Analysis, Systems Design, Testing, On-site Implementation and Maintenance.

UNIT 4: Fact Finding methods.

UNIT 5: Different Approaches to Software Development

5.1 Classic method: Waterfall Model

5.2 Prototyping

5.3 Spiral Model

5.4 4 GL or Data Oriented Approach

UNIT 6: Structured Analysis and Design method and Software

Engineering Techniques, Tools and Methodologies in Systems Development

6.1 Application System Modeling

6.1.1 Data Modeling: Entity Relationship Diagram

6.1.2 Process Modeling: Data Flow Diagrams

6.1.3 Concepts of Object Oriented Modeling

6.2 Database Design Methods

6.2.1 Mapping E-R model to arrive at the Database Design

6.2.2 Normalization Technique for Database Design

6.2.3 Controlled de-Normalization

6.3 System Documentation Techniques

6.3.1 Process Charts

6.3.2 Functional decomposition Diagram

6.3.2 System Flow Chart

6.3.3 Structure Charts

6.3.4 Structured Flow Charts (N-S Diagram)

6.4 Logic Representation Techniques

6.4.1 Decision Tables

6.4.2 Decision Trees

6.4.3 Structured English

UNIT 7: User Interface Design

7.1 Menu, Screen and Report Layouts designing

UNIT 8: Codes designing for field values

8.1 Codes designing for field values

UNIT 9: Introduction to Computer Aided Software Engineering

(CASE)

9.1 Centralized Data Dictionaries, Code generator in CASE tools,

Analysis of programs and impact Analysis for introducing

Changes, Concept of Reverse Engineering.

UNIT 10: Batch processing, On-line processing and Real time processing

Books Recommended:

- *Analysis and Design of Information Systems 2e* by Senn
- *Software Engineering Practitioner's Approach* by Roger Pressman
- *Introduction to System Analysis & Design* by Hawryszkiewicz.
- *Systems Analysis and Design* by Elias Awad
- *Introducing Systems Analysis and Design* by Lee
- *Systems Analysis & Design* by Perry Edwards (McGraw Hill)
- *Systems Analysis, Design & Introduction to Software Engineering (SADSE)* by Parthasarthy S, Khalkar B W