

**BCA-15**  
**SOFTWARE ENGINEERING**

**Unit 1 : Introduction to Software Engineering**

Definition of Software Engineering, Need for Software Engineering, Software Characteristics, Software Qualities

**Unit 2 : Requirement Analysis**

Definition of System Analysis, Requirement Analysis, System Analyst, Knowledge and Qualities of System Analyst, Role of a System Analyst, Feasibility Study and Types, Fact Gathering , User Transaction Requirement, User Design Requirements, SRS (System Requirement Specification)

**Unit 3 : System Development Methodologies**

System Development Phases, Need for a Software Life Cycle Model, Software Development Models: Waterfall Model, Spiral Model, Prototyping Model

**Unit 4 : Analysis and Design Tools**

Entity-Relationship Diagrams, Decision Tree and Decision Table, Data Flow Diagrams (DFD), Data Dictionary :Elements of DD, Advantage of DD; Pseudo code, Input And Output Design

**Unit 5 : Structured System Design**

Modules Concepts and Types of Modules, Structured Chart, Qualities of Good Design: Coupling, Types of Coupling, Cohesion, Types of Cohesion

**Unit 6 : Software Testing**

Definition, Testing Strategies, Types of Testing, Black-Box Testing, White-Box Testing, Stress Testing, Storage Testing, Performance Testing

**Suggested Readings:**

1. Pressman, Roger S., "Software Engineering: A Practitioner's Approach Ed. Boston: McGraw Hill, 2001
2. Jalote, Pankaj, "Software Engineering Ed.2", New Delhi: Narosa 2002
3. Schaum's Series, "Software Engineering", TMH
4. Ghezzi, Carlo and Others, "Fundamentals of Software Engineering", PHI
5. Alexis, Leon and Mathews Leon, "Fundamental of Software Engineering", Vikas
6. Sommerville, Ian, "Software Engineering", AWL, 2000