

**B.Sc. (Computer Science)**  
**III - YEAR/ V - SEMESTER**  
**THEORY PAPER - V**  
**System Analysis & Design**  
**(w.e.f 2017-18)**

<b>Scheme of Instruction</b>	<b>Scheme of Examination</b>
Total durations Hrs : 60	Max. Marks : 100
Hours/Week : 06(4T+2P)	Internal Examination :30
Credits : 5	SBT : 10
Instruction Mode: Lecture +practical	External Examination :60
Course Code : BS.07.201.13.T	Exam Duration : 3 Hrs
<b>Course Objectives:</b>	
To prepare the students to develop the skills necessary to handle software projects. To make the students aware of the importance of software engineering principles in designing software projects	
<b>Course Outcomes:</b>	
On completion of the course the student will	
<ul style="list-style-type: none"> <li>➤ Understand the importance of the stages in the software life cycle.</li> <li>➤ Understand the various process models.</li> <li>➤ Be able to design software by applying the software engineering principles.</li> </ul>	

**Unit – I:Introduction to System and Approaches to System development**

Introduction to System: System, Information System, Types of Information System

Approaches to System development: Software Development Life cycle, Software Development

Models:Waterfall model, Iterative Model, RAD model, Incremental model, Spiral model.

**Unit - II:Project management and Planning**

Project management Concepts: The management Spectrum: People, The Problem, The Process

Software Project Planning: Project planning objectives, Software Scope, Resources, Software

Project estimation, The Make-Buy decision, software risks.

**Unit - III:Analysis Concepts, Principles and Modeling**

Analysis Concepts and Principles: Requirement Analysis, Communication techniques: Initiating the Process, Facilitated Application Specification techniques, Quality Function development.

Analysis Principles: The Information Domain, Modeling, Partitioning, Software Requirement Specification.

Analysis Modeling: Data Modeling: Data objects, Attributes and relationships, cardinality and modality. Data flow diagrams, Entity-Relationship Diagrams, The Data Dictionary.

**Unit - IV: Design Concepts & Principles and Effective Modular design**

Design Concepts & Principles: Software Design and software Engineering, the design process, the design principles, Design Concepts: Abstraction, Refinement, Modularity, Software architecture, Control hierarchy, Structural Partitioning, Data Structure, Software procedure, Information Hiding.

Effective Modular design: Functional independence, Cohesion, Coupling. User Interface Design: the Golden rules, User Interface and Design Process, Interface analysis.

**References:**

- 1) Software Engineering – A Practitioners approach, Fourth Edition, Roger S. Pressman, MGH.
- 2) An Integrated Approach to Software Engineering, Second Edition, Pankaj Jalote.
- 3) “System Analysis and Design” by Dennis, Wixon and Roth – John Wiley

**B.Sc. (Computer Science)**  
**III - YEAR/ V - SEMESTER**  
**PRACTICAL PAPER - V**  
**System Analysis & Design Lab**

**Course Objectives:**

To prepare the students to develop the skills necessary to develop different diagrams. To make the students aware of the importance of software engineering principles in designing software projects

**Course Outcomes:**

On completion of the course the student will

- Students can able to develop standard SRS document
- Students can able to develop different Diagrams for given software.

1. Develop a problem statement.
2. Develop an IEEE standard SRS document.
3. Discuss the tool to draw different types of diagram throughout the analysis & design.
4. Develop Data Flow Diagrams
5. Identify Usecases and develop Usecase model
6. Develop Activity Diagram
7. Develop State Diagram
8. Develop Sequence Diagram
9. Develop Collaboration Diagram
10. Develop Entity Relationship Diagram
11. Develop Usecases, Sequence diagram and Activity Diagram for Event management system
12. Develop Usecases, Sequence diagram and Activity Diagram for Payroll management system
13. Develop DFD, ERD and Usecases, for Student Feedback System
14. Develop DFD, ERD and Usecases, for Inventory Management System
15. Develop DFD, ERD, Usecases, Sequence diagram and Activity Diagram for Attendance Management System