

## SOFTWARE ENGINEERING LAB MANUAL

### Lab Assignment 1

Title	Project Abstract
Objective	To get familiar with objective and abstract of the project
References	<ol style="list-style-type: none"><li>1. Various project documents which was developed by CMU</li><li>2. Software Engineering Roger Pressman McGraw Hill Fifth edition</li><li>3. Software Engineering Ian Somerville Pearson Education Sixth edition</li><li>4. An Integrated Approach To Software Engineering Pankaj Jalote</li></ol>
Pre –requisite	Knowledge of MS-office
Theory	In this phase student has to <ol style="list-style-type: none"><li>1. Brainstorming</li><li>2. Understand the project</li><li>3. Define project</li><li>4. Objective of the project</li><li>5. Abstract of the project</li></ol>
Sample output	Objective and Abstract of the project
Post lab assignment	Prepare some scenarios on project and nature of the project

### Lab Assignment 2 & 3

Title	Prepare Software Requirement Analysis document to your respective project
Objective	To get familiar with preparing a document which is used before starting the project
References	<ol style="list-style-type: none"><li>1. Various project SRS documents which was developed by CMU</li><li>2. Software Engineering Roger Pressman McGraw Hill Fifth edition</li><li>3. Software Engineering Ian Somerville Pearson Education Sixth edition</li><li>4. An Integrated Approach To Software Engineering Pankaj Jalote</li></ol>
Pre –requisite	Knowledge of various process models
Theory	<p>The Software requirements specification is produced as culmination of the analysis task which contains:-</p> <ol style="list-style-type: none"><li>1. Introduction<ol style="list-style-type: none"><li>a. Purpose</li><li>b. Scope</li><li>c. Goal &amp; Objectives of Software</li></ol></li><li>2. Information Description<ol style="list-style-type: none"><li>a. Problem Description</li><li>b. Information Flow</li><li>c. Hardware Interface</li></ol></li><li>3. Functional Description<ol style="list-style-type: none"><li>a. Process Narrative for each function</li></ol></li><li>4. Design Constraints<ol style="list-style-type: none"><li>a. Performance Characteristics</li></ol></li></ol>

	b. Behavioral Description c. Validation Criteria
Sample output	A SRS document which contains detailed information about each of the point specified above.
Post lab assignment	1. What is meant by software requirement definition ? Elaborate on its importance 2. Explain varies steps involved in Requirement Engineering ?

### Lab Assignment 4 & 5

Title	System Design & Architecture
Objective	Prepare System Design & Architecture
References	1. Design Documents developed by CMU 2. Software Engineering Roger Pressman McGraw Hill Fifth edition 3. Software Engineering Ian Somerville Pearson Education Sixth edition 4. An Integrated Approach To Software Engineering Pankaj Jalote
Pre –requisite	Knowledge of designing and umbrella software
Theory	System Design System Architecture Detailed System Design
Sample output	Design document which contains detailed information about each of the point specified above.
Post lab assignment	1. What is meant by software design? Various design models 2. Design phases in each model

### Lab Assignment 6 & 7

Title	UML based design
Objective	Identify & draw different diagrams
References	1. UML manual 2. Software Engineering Roger Pressman McGraw Hill Fifth edition 3. Software Engineering Ian Somerville Pearson Education Sixth edition 4. An Integrated Approach To Software Engineering Pankaj Jalote
Pre –requisite	Study about different diagrams & using umbrillo,
Theory	1. Use case diagram 2. Class diagram 3. Sequence Diagram 4. Activity diagram 5. State diagram 6. State transaction diagram

Sample output	Design document which contains detailed diagram about each of the diagram specified above.
Post lab assignment	1. Importance & role of the design diagrams in a project

### Lab Assignment 8 & 9

Title	Draw E-R diagram, DFD
Objective	To understand actual system using analysis model
References	1. Software Engineering Roger Pressman McGraw Hill Fifth edition 2. Software Engineering Ian Somerville Pearson Education Sixth edition 3. An Integrated Approach To Software Engineering Pankaj Jalote
Pre –requisite	Knowledge of -Analysis model-data modeling, functional modeling and behavioral model
Theory	Analysis model is first technical representation of the system. This model consists of data dictionary as its core, and then followed by three diagrams E-R diagrams, data flow diagram, and state-transition diagram. All these diagrams are part of functional model.
Sample output	E-R diagram, data-flow diagram, state-transition diagram for the project
Post lab assignment	1. Explain data modeling? 2. Identify the differences between various diagrams

### Lab Assignment 10 & 11

Title	Design of the test cases
Objective	To understand various testing techniques
References	4. Software Engineering Roger Pressman McGraw Hill Fifth edition 5. Software Engineering Ian Somerville Pearson Education Sixth edition 6. An Integrated Approach To Software Engineering Pankaj Jalote
Pre –requisite	Knowledge of Various Testing strategies
Theory	Testing begins “in the small” and progresses “to the large”. The early testing focuses on a single component and applies white- and black-box tests to uncover errors in program logic and function. After individual components are tested they must be integrated. Testing continues as the software is constructed. Finally, a series of high order tests are executed once the full program is operational.

Sample output	<ol style="list-style-type: none"> <li>1. Unit testing</li> <li>2. Regression testing</li> <li>3. Integration testing</li> <li>4. Validation Testing</li> <li>5. system testing</li> </ol>
Post lab assignment	<ol style="list-style-type: none"> <li>1. Compare testing and debugging?</li> <li>2. Explain various system testing?</li> </ol>

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**Final submission of project:**

**Evaluation criteria: internal 40marks external 60 marks**

**List of the Instructors :**

**SATYANANDARAM N**