



NARSIMHA REDDY ENGINEERING COLLEGE

An Autonomous Institution | Affiliated to JNTUH | Approved by AICTE
Accredited by NBA & NAAC with 'A' Grade

UNIT-II Software Requirements



Unit II Syllabus

- Functional and Non-functional Requirements
- User Requirements
- System Requirements
- Interface Specification
- SRS Document
- Requirements Engineering Process



Introduction to Software Requirements

- Requirements describe what the system should do and constraints under which it operates.



Importance of Requirements Engineering

- Reduces project failure
- Improves quality
- Minimizes rework



Functional Requirements

- Define services and functions the system must provide.
- Examples: Login, Search, Payment.



Examples of Functional Requirements

- ATM: Withdraw cash
- E-commerce: Add to cart
- Library: Issue books



Non-Functional Requirements

- Define quality attributes such as performance, reliability, security, usability.



Types of Non-Functional Requirements

- Performance
- Security
- Reliability
- Usability
- Maintainability



User Requirements

- Statements in natural language describing user expectations.



Examples of User Requirements

- Users shall be able to book tickets online.
- Users shall receive notifications.



System Requirements

- Detailed description of system functions and constraints.



Examples of System Requirements

- The system shall process 1000 transactions/minute.



Interface Specification

- Defines interaction between software, hardware, users, and external systems.



Types of Interfaces

- User Interface
- Hardware Interface
- Software Interface
- Communication Interface



Software Requirements Specification (SRS)

- A formal document describing all software requirements.



Characteristics of Good SRS

- Correct
- Complete
- Consistent
- Verifiable
- Modifiable
- Traceable



IEEE SRS Structure

- Introduction
- Overall Description
- Specific Requirements
- Appendices



Requirements Engineering Process

- Feasibility Study
- Elicitation
- Analysis
- Validation
- Management



Feasibility Study

- Technical, Economic, Operational, Legal, and Schedule feasibility.



Requirements Elicitation

- Interviews
- Questionnaires
- Observation
- Workshops
- Brainstorming



Requirements Analysis

- Organizing, prioritizing, and resolving conflicts among requirements.



Requirements Validation

- Ensures requirements are correct and complete.



Validation Techniques

- Reviews
- Prototyping
- Test-case generation



Requirements Management

- Managing changes to requirements throughout the project lifecycle.



Challenges in Requirements Engineering

- Changing requirements
- Communication gaps
- Ambiguity



Case Study: Online Banking System

- Requirements gathering and validation for secure banking services.



Real-Time Example: IRCTC

- Functional: Ticket Booking
- Non-Functional: Security, Reliability



Summary

- Review of Unit II concepts and processes.

