



STANLEY
COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
(Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)
Address : Chapel Road, Abids ,Hyderabad

CS 304

Software Engineering

UNIT -I

Introduction to Software Engineering:

Generic view of Process: Software Engineering, Process Framework, CMM, Process Patterns, Process Assessment, Personal and Team Process, Process Technology, Product and process.

Process Models: Perspective Models, Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process.

An Agile View of Process: What is Agility, Agile Process, and Agile Process Models.

UNIT-II

Planning and Managing the Project: Tracking Progress, Project Personnel, Effort Estimation, Risk Management, the Project Plan, Process Models and Project Management, Information Systems Example, Real-time Example.

Requirement Engineering: A bridge to design and construction, Requirement Engineering tasks, Initiating Requirement Engineering Process, Eliciting Requirement, Developing Uses cases, Building the Analysis Model, Negotiating Requirements, Validating Requirements.

UNIT-III

Building the Analysis Model: Requirements Analysis Modeling approaches, Data modeling concepts, Object oriented analysis , Scenario based modeling, Flow oriented modeling, Class-based modeling, Creating a Behavioral Modeling.

Design Engineering: Design within the context of SE, Design Process and Design quality, Design concepts, The Design Model, Pattern-based Software Design.

UNIT-IV

Creating Architectural Design: Software architecture, Data design, Architectural Styles and Patterns, Architectural Design, Assessing alternative Architectural Designs, Mapping data flow into software Architecture.

Modeling Component-Level Design: What is a Component, Designing Class-Based components, Conducting Component-level Design, Object Constraint Language, Designing Conventional Components.

Performing User Interface Design: The Golden Rules, User Interface Analysis and Design, Interface Analysis, Interface Design Steps, Design Evaluation.

UNIT-V

Testing Strategies: A Strategic approach to software testing, strategic issues, test strategies for O-O software, validation testing, system testing, art of debugging.

Testing Tactics: Software Testing Fundamentals, Black-Box and white box Testing, basis path testing, Control Structure Testing, O-O Testing methods, Testing Methods applicable on the class level, inter class Test case design, Testing for Specialized environments, architectures and applications, Testing Patterns.

Product Metrics: Software quality, A framework for product metrics, Metrics for the analysis model, metrics for the Design model, metrics for source code, Metrics for Testing, Metrics for maintenance.

Suggested Reading:

1. 1. Roger S. Pressman, "*Software Engineering – A Practitioners Approach*", 6th Edition, Pearson Education, India, 2005.
1. 2. Shari Lawrence Pfleeger, "*Software Engineering Theory and Practices*" 4th Edition - Pearson Education, India, 2011.
1. 3. Pankaj Jalote, "*An Integrated Approach to Software Engineering*", 3rd Edition, Springer Link Edition, India, 2005.