

SARDAR PATEL UNIVERSITY
Course Code : US05CBCA03
Software Engineering

Credits: 4

Lectures per week : 4

UNIT-1 Introduction			
Topic	No. of Lectures planned	Book No.	Page No.
Software and Software Engineering	1	1	1,3,7-8
Characteristics of Software process		1	28-34
Phases of Software Development	2	1	13-17
Effort Distribution, Error Distribution,	1	1	30-32
Process Models: Waterfall, Prototype, Iterative Enhancement, Spiral Model (Overview only)	4	1	36-46
Software Metrics	1	1	18

Unit-2 Requirement Specification and Software Project Planning			
Topic	No. of Lectures planned	Book No.	Page No
Introduction: SRS and Needs	1	1	73-79
Problem Analysis: (Structuring Information ONLY)	1	1	83-87
Requirement Specifications: Characteristics & Components of SRS Specification Languages (Structured English, Regular Expressions & Decision Tables) (Definition ONLY) Structure of SRS	2	1	120-132
Validation of SRS	1	1	133-137
Introduction to software projects, Planning, Categories of Software projects	2	1	159-160
Overview of Cost estimation, Uncertainty in cost estimation, size estimation, COCOMO Model (with example)	2	1	160-170
Project Monitoring Plan (Time sheets, Reviews, Cost-Schedule-Milestone, Earned Value Method)	2	1	189-192
Software Quality Assurance Plans (SQAP)	1	1	180-189
Risk Management (Introduction ONLY)	1	1	193-200

Unit-3 Software Design			
Topic	No. of Lectures planned	Book No.	Page No
Introduction: System Design, Design Objectives, Design Principles/Concepts: Top-down & Bottom-up approach Problem Partitioning Abstraction Modularity	2	1	209-216

Module Level concept, Coupling, Cohesion	1	1	217-221
Overview of Structured design	1	1	227-228
Functional v/s Object-oriented approach (Difference ONLY)	1		209-210, 273-274
Design Specification, Verification	1	1	226-227, 240-242
Introduction: Detailed Design, Module Specification and its Desirable Properties, Functional module Specification, Data Abstraction Specification	2	1	329-334
PDL, Logic/Algorithm Design	1	1	337-343
Verification- Design Walkthrough, Critical Design, review, Consistency checkers	1	1	345-347

UNIT-4 Coding and Testing			
Topic	No. of Lectures planned	Book No.	Page No.
Introduction: Coding, Top Down & Bottom Up Approach for coding	1	1	355-358
Structured Programming, Information Hiding	1	1	358-363
Programming Style	1	1	363-365
Internal Documentation	1	1	366
Verification (Code Reading ONLY)	1	1	369-370
Introduction: Testing, Error, Fault, Failure & Reliability	1	1	403-405
Top down and bottom up approach for testing Levels of Testing	1	1	407-408
Levels of Testing	1	1	445-447
Functional Testing v/s Structural Testing (Difference ONLY)	1	1	412- 428

Main Reference Books:

1. An Integrated Approach to Software Engineering by Pankaj Jalote ,Narosa Publishing House, Second Edition,1997
2. Software Engineering a practitioner's approach by Roger S. Pressman, Tata McGraw-Hill, Fifth Edition, 2001

Additional Reference Books:

1. Software Engineering Fundamentals ,By Richard Fairley, Tata McGraw- Hill
2. Software Engineering, By Ian Sommerville, Addition-Wesley, Fifth Edition, 2000