

SARDAR PATEL UNIVERSITY

B.C.A. Semester – V

US05CBCA23 : Software Engineering

(Syllabus Effective from June 2020)

Credits : 4

External : 70 Marks

Contact Hrs per Week : 4

University Examination Duration: 3 Hrs

All units carry equal weightage

Unit	Description in detail
I	Introduction Software and Software Engineering Characteristics of Software process Phases of Software Development Process Models: Waterfall, Prototype, Iterative Enhancement, Spiral Model (Overview only)
II	Requirement Specification and Software Project Planning Introduction: SRS and Needs Problem Analysis: (Structuring Information ONLY) Requirement Specifications: Characteristics & Components of SRS Specification Languages (Structured English, Regular Expressions & Decision Tables)(Definition ONLY) Structure of SRS Validation of SRS Introduction to software projects, Planning, Categories of Software projects Overview of Cost estimation, Uncertainty in cost estimation, size estimation, COCOMO Model (with example) Project Monitoring Plan (Time sheets, Reviews, Cost-Schedule-Milestone, Earned Value Method)
III	Software Design Introduction: System Design, Design Objectives, Design Principles/Concepts: Topdown& Bottom Up approach Problem Partitioning Abstraction Modularity Module Level concept, Coupling, Cohesion Overview of Structured design Functional v/s Object-oriented approach(Difference ONLY) Design Specification, Verification Introduction: Detailed Design, Module Specification and its Desirable Properties, Functional module Specification, Data Abstraction Specification Verification- Design Walkthrough, Critical Design, review, Consistency checkers
IV	Coding and Testing Introduction: Coding, Top Down & Bottom Up Approach for coding Structured Programming, Information Hiding Programming Style Internal Documentation Verification (Code Reading ONLY) Introduction: Testing, Error, Fault, Failure & Reliability Top down and bottom up approach for testing Levels of Testing Levels of Testing Functional Testing v/s Structural Testing (Difference ONLY) Automated testing tool

Basic Text & Reference Books :-

1. An Integrated Approach to Software Engineering by PankajJalote ,Narosa Publishing House, Second Edition,1997
2. Software Engineering a practitioner's approach by Roger S. Pressman, Tata McGraw-Hill, Fifth Edition, 2001
3. Software Engineering Fundamentals ,By Richard Fairley, Tata McGraw- Hill
4. Software Engineering, By Ian Sommerville, Addition-Wesley, Fifth Edition, 2000