

**SARDAR PATEL UNIVERSITY**  
**Programme: BCA**  
**Semester: V**  
**Syllabus with effect from: June-2013**

<b>Paper Code: US05CBCA03</b>	<b>Total Credit: 4</b>
<b>Title Of Paper: Software Engineering</b>	

Unit	Description in detail	Weighting (%)
I	<b>Introduction</b> Introduction : Software and Software Engineering General Characteristics of Software Process Phases in Software development Effort and Error Distribution Process Models : Waterfall, Prototype, Iterative enhancement, spiral Software metrics : introduction, product metrics, process metrics	25%
II	<b>Requirement Specification and Software Project Planning</b> Introduction : Software Requirement Specification (SRS) and Needs Problem Analysis - Structuring Information Introduction to UML Software Requirement Specifications (SRS), Characteristics and Components of SRS Specification language (Structured English, Regular Expression and Decision Table) Structure of SRS, Validation of SRS Introduction: 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 and Earned value method Software Quality Assurance Plans (SQAP) Overview of Risk Management	25%
III	<b>Software Design</b> Introduction : System Design Design Objectives and Design Principles Design Concepts - Top down and Bottom up approach, Problem Partition, Abstraction, Modularity, Module Level concept, Coupling, Cohesion Overview of structured design Function v/s Object Oriented approach Design Specification, Verification Introduction: Detailed Design Module Specification, Desirable properties, functional module specification, Data abstraction specification PDL, Logic/ Algorithm Design Design Verification – Design Walkthrough, Critical Design review, Consistency checkers	25%
IV	<b>Coding and Testing</b> Introduction: Coding, Top Down and Bottom Up approach for coding Structured programming, Information Hiding Programming style, Internal documentation	25%



Verification (code reading) Introduction : Testing, Error, Fault, Failure & Reliability Testing process, Top down and bottom up approach for testing Levels of Testing Functional Testing v/s. Structural testing	
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### **Basic Text & Reference Books :-**

- An Integrated Approach to Software Engineering : By Pankaj Jalote, Narosa Publishing House, Second Edition, 1997
- Software Engineering a practitioner's approach : By Roger S. Pressman, Tata McGraw- Hill, 5th Edition

### **Books For Additional Reading :**

- Software Engineering Fundamentals, By Richard Fairley, Tata McGraw Hill
- Software Engineering By Ian Sommerville, Addison- Wesley, 5th Edition, 2000

