SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar
Programme & Subject : B.Sc (CA & IT) – M.Sc (CA & IT) Dual Degree
Semester - 4
PS04CIIT27 : Software Engineering
(w.e.f June 2019)

Credits : 4 **Exam Duration : 3hrs**
Lectures per week : 4
All units carry equal weightage.

Unit	Description in detail	Weightage
I	**Introduction** – Defining Software & Introduction to Software Engineering – Characteristics of Software – Activities of Software Process – Umbrella Activities – Process Flow (Linear, Iterative, Evolutionary, Parallel) – Process Model: Waterfall, Prototype, Iterative, Enhancement, Spiral (Overview) – CMM	25%
II	**System Requirement Specification and Software Project Planning** – Introduction to System Requirement Specification and need of SRS – Requirement Specifications, Characteristics & Components of SRS – Specification Languages (Structured English, Regular Expressions & Decision Tables) **(Definition Only)** – Structure and Validation of SRS. – Introduction to Software Project Planning and list of major issue of project plan – Overview Cost Estimation (Uncertainties in Cost Estimation, Building Cost ,Estimation Models, On Size Estimation, COCOMO model) – Project Monitoring Plan (Time sheets, Reviews, Cost-Schedule-Milestone, Earned Value Method, Unit Development Folder – Quality Assurance Plans – Overview of Risk Management	25%

III	**System Design and Detail Design** – Introduction to System Design, Design Principles (Problem Partitioning & Hierarchy, Abstraction, Modularity, Top-Down and Bottom-up strategy – Module Level Concepts (Coupling & Cohesion) – Introduction: Detailed Design, Module Specification (Specifying Functional Module, Specifying Classes) – Verification- Design Walkthrough, Critical Design, review, Consistency checkers	25%
IV	**System Coding & Testing** – Introduction: Coding, coding process (Top Down & Bottom Up approach for coding) , Structured Programming, Information Hiding, Programming Style, Internal Documentation – Verification with 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 **(Difference Only)**	25 %

Basic Text & Reference Books:

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