SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc – Information Technology (Integrated)
Semester: V
Syllabus with Effect from: June - 2014

Paper Code: PS05CIIT01	Total Credit: 3
Title of Paper: Software Engineering - I	

Unit	Description in Detail	Weightage (%)
I	**Introduction** Defining Software & Introduction to SE 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** 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	**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:

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