Paper code: HCSCR4092T	Software Engineering (Theory)	Marks: 60
Sl. No.	**Topics**	**No. of Periods**
	Group A	**26**
1.	**Introduction**: The Evolving Role of Software, Software Characteristics, Changing Nature of Software, Software Engineering as a Layered Technology, Software Process Framework, Framework and Umbrella Activities, Process Models, Capability Maturity Model Integration (CMMI).	8
2.	**Requirement Analysis**: Software Requirement Analysis, Initiating Requirement Engineering Process, Requirement Analysis and Modeling Techniques, Flow Oriented Modeling, Need for SRS, Characteristics and Components of SRS, SRS Validation.	9
3.	**Software Design:** Design principles, Architectural Design Elements, Software Architecture, Module level concepts, Coupling, Cohesion, Structured design methodology, Data Design at the Architectural Level and Component Level, Mapping of Data Flow into Software Architecture, Modeling Component Level Design.	9
	Group B	**26**
4.	**Software Project Management:** Phases in Software Project Management: Estimation in Project Planning Process, Project Scheduling, Phases in Software Project Management, Function Point Method, Cost Estimation – COCOMO.	8
5.	**Risk Management**: Software Risks, Risk Identification, Risk Projection and Risk Refinement, RMMM Plan.	5
	Quality Management: Quality Concepts, Software Quality Assurance, Software Reviews, Metrics for Process and Projects.	5
6.	**Software Testing :** Software Testing Fundamentals, Levels of Testing, Types of testing, Strategic Approach to Software Testing, Test Strategies for Conventional Software, Validation Testing, System Testing, Black-Box Testing, White-Box Testing and their type, Basis Path Testing.	8

Reference Books:

1. Software Engineering: A Practitioner's Approach, by Roger S Pressman, McGraw Hills
2. Software Engineering, Ian Sommerville - Pearson Education
3. An Integrated Approach to Software Engineering, Pankaj Jalote – NAROSA
4. Object-Oriented Analysis and Design with Applications, Grady Booch, Robert A. Maksimchuk, Addison Wesley
5. Fundamentals of Software Engineering, Rajib Mall, PHI

Paper code: HCSCR4092P	Software Engineering (Practical)	Marks: 40