Course Code	**40110203**			
Category	**Core Subject**			
Course Title	**Software Engineering (SE)**			
Scheme and Credits	**Theory**	**Tutorial**	**Lab**	**Credits**
	4	**0**	**0**	**4**
Pre-requisites (if any)	Systems & Object-Oriented Design Methodologies			

1.Course Objectives:

1	To understand the concepts of software Engineering
2	To understand how to Select and apply Appropriate Process Model to All Stages ofSoftware Development Life Cycle (SDLC)
3	To understand how to manage user's Requirement
4	To understand how to Analyse, Design, Build and test software
5	To understand agile methodology.

2. Course Contents:

Unit	Course Content	Weightage
Unit I	**Introduction to Software Engineering & Process Models & Requirement Engineering** Software Engineering, Software Process Process Models – Waterfall, Incremental, Evolutionary ProcessModel – Prototype, Spiral and concurrent Development Model Agile Process; Extreme Programming (XP); Brief Overview of Other Agile Process Models: Adaptive Software Development,Scrum **Requirement Engineering :** Requirements Engineering; Groundwork for Understanding ofSoftware Requirements; Overview of Eliciting Requirements, DevelopingUse Cases, Building the Requirements Model; Negotiating Requirements; Validating Requirements; Requirement Modelling Strategies; Overview of Flow-Oriented Modelling, Behavioral Modelling;	**25%**
Unit	**Design Concepts**	**20%**

II	Design Concepts, Design Model; Architectural Styles, Architectural Design, Assessing Alternative architectural Designs, Architectural mapping Using Data Flow User Interface Design: Golden Rules of User Interface Design;User Interface Analysis and Design; Interface Analysis; Interface Designsteps	
Unit III	**Software Testing** Software; Test Strategies for Object Oriented Software; TestStrategies for WebApps; System Testing; Debugging; Software Testing Fundamentals; White-Box Testing; Basic PathTesting; Control Structure Testing; Black-Box Testing;	**10%**
Unit IV	**Introduction to Agile Methodology** Agile Principles: 12 principles of Agile software, The customer is always right, Delivering the project, Communicating and working together, Project execution - Moving the project Along, Constantly Improving the Project and the Team, Agile Project: Bringing all the principles Together Scrum and Self organizing Teams: The rules of Scrum, Everyone on a Scrum Team Owns Project, The whole team uses the daily Scrum, Sprints, planning and retrospectives Scrum Planning and collective commitment: User stories, Velocity and Accepted Scrum Practices, Scrum Values revisited. i)Agile Project Charter ii) Agile Roadmap / Schedule iii) Agile Project Plan iv) Agile User Story (Minimum 3 Tasks) v) Agile Release Plan vi) Agile Sprint Backlog vii) Agile Test Plan viii) Earned-value and burn charts	**20%**
Unit V	**UML Diagram :** Use case, Class, Sequence, Activity and Collaboration diagrams **Case Studies :** Facebook Application, WhatsApp Application, Twitter Application, Food Delivery Application,	**25%**

3. Text Books:

1) Roger S. Pressman, "Software Engineering – A Practitioner's Approach", 7th Edition, McGraw Hill Publications

2) Andrew Stellman, Greene Jennifer, Beginning Agile, O'Reilly

3) Rods Stephen, Beginning Software Engineering, WROX

4. Accomplishment of the student after completing the course:

- Students will understand a high-level overview of the software development process.
- Student will understand various process models available for software engineering, activities of software engineering like software requirements, software design, software construction, software management, and software quality etc.
- Student will understand agile methodology.