Branch: BCA	Semester-IV
Subject Code: 4104	Lecture: 04 Credit: 04
Course Opted	Core Course - 14
Subject Title	**SOFTWARE ENGINEERING**

Course Objectives:
- To understand the nature of software development and software life cycle process models, agile practices.
- To Explain methods of capturing, specifying, visualizing and analyzing software requirements.
- To understand concepts and principles of software design and user-centric approach and principles of effective user interfaces.
- To understand need of project management and project management life cycle.
- To understand project scheduling concept and risk.

Course Outcomes:
- Provide the ability to select and apply the knowledge of defined engineering technology activities.
- Able to describe key activities in software development and the role of modeling.
- Able to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Able to explain key concepts in software development such as change management, testing and quality.

Module	Sr. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	**Introduction to Software Engineering:** Definition, need, software engineering methods, Tools, procedures, Software engineering layers, SEI- CMM, process framework	6	12
	2	**Software Process Model:** waterfall, spiral,iterative,enhancement and phased development, RAD model, Prototyping model, V life cycle	7	14
	3	**Software project planning:** Overview, objectives, scope, resources.	2	4
UNIT-II	4	**Requirement analysis:** Requirement Engineering, Requirements Elicitation and Analysis model, QFD, FAST & Use-cases, Requirements Specification	5	10
	5	**Software Project Scheduling:** Importance, Work breakdown structure, effort distribution, Gantt chart & tracking the schedule. scheduling Methods: PERT and CPM	5	10
	6	**Software Metrics:** Direct and indirect methods, size oriented and function oriented metrics, COCOMO	3	6

UNIT-III	7	**Design representations:** Flow charts, pseudo code, HIPO, DFD, Decision Table **Modular design:** coupling and cohesion, its various types	5	10
	8	**Project Management Spectrum** Software Quality assurance: overview, definitions for software quality, roles, verification and validation, FTR, ISO	4	8
	9	**Software configuration management:** identification, control, auditing, status accounting	2	4
UNIT-IV	10	**Software testing Overview:** Strategy for testing, White Box Teasting& Black box testing, cyclomatic complexity, Debugging	6	12
	11	**Agile Software Development:** Coping with Change, The Agile Manifesto:Values and Principles, agile project management	5	10
Total			50	100

Text Book:

1. Pressman ,"Software Engineering A Practitioner's Approach" McGraw-Hill, 5th Edition, 2005

References:

1. Shooman, "Software Engineering Design, Reliability and Management" McGraw Hill 198
2. Fairley "Software Engineering Concepts" " McGraw--Hill Series, New York,