Course Code	Course Name	Credits
20MCACC301	Software Engineering	05

❖ Aim of the Course:

1	Software engineering aims to develop a broad understanding of each stage of software engineering life cycle, viz. communication, planning, analysis, design, construction, and deployment. It seeks to complement this with a detailed knowledge of techniques for the analysis and design of complex software intensive systems. The aim is to set these techniques in an appropriate engineering and management context.

❖ Course Overview and Context:

1	The course is divided into five units. Each unit is the step by step progress towards the development of the real time project. We start with the very basic introduction of traditional software development model and Agile Software development model. Then we move forward with step by step deep understanding of each phase in Software Development Life Cycle. We will also cover UML diagrams. This course will become the base of the real time development of any type of software, whether it may be an mobile application, website, or a desktop application.

❖ Course Outcomes:

Sr #	Course Outcome	Cognitive Level
1	**Recall** the working and types of traditional and Agile software development model and **Instantiate** which development model should be applied in the given situation.	Remember, Understand
2	**Categorize** types of requirements, and the method of requirement gathering. Prepare SRS (Software Requirement Specification) document by **determining** user requirement.	Understand, Apply
3	**Determine** the good User Interface design by **illustrating** three Golden Rules of user interface design.	Understand, Apply
4	To **understand** various coding conventions and **apply** it while developing a software. To **understand** various testing techniques and **apply** them on software projects.	Understand, Apply
5	To **understand** the requirement of client and **draw** various UML diagram.	Understand, Apply

❖ Content of the Course:

Unit-1 Software Engineering, Process models-An Introduction

- Introduction
- Software process;
- Traditional software process models.
- Characteristics of Agile projects;
- Agile software process models;
- Differentiating characteristics of Agile software process model with traditional.

Unit-2 Requirement Engineering Principle, Design and Architectural Engineering

- Introduction
- What requirement engineering is?

- Importance and types of requirements
- Steps involved in requirement engineering process.
- Design process and concept
- Basic issues in software design
- Characteristics of good design
- Function-oriented system vs object-oriented system
- Modularity, cohesion, coupling, layering.

Unit-3 User Interface Design (UI)

- Introduction
- Concept of user interface
- Elements of the user interface
- Designing the user interface
- User interface design evaluations
- Golden rules of user interface design.

Unit-4 Software Coding, and testing

- Software Coding-An Introduction
- Programming principles
- Programming guidelines
- Coding conventions
- Key concepts in software coding.
- Software testing-An Introduction
- Psychology of testing
- Software testing Scope
- Software testing objective
- Strategic approach to software testing
- Types of software testing.

Unit-5 UML Modelling

- Introduction;
- Class diagram, Object diagram;
- Use case diagram;
- Activity diagram and sequence diagram.

❖ Learning Resources:

Sr #	Textbook | References | Internet Links
1	Chandramouli Subramanian, Saikat Dutt, Chandramouli Seetharaman, B G Geetha, Software Engineering, Pearson
2	Object-Oriented Modeling and Design with UML by Michael Blaha, James Rumbaugh, Pearson Education Publication, 2nd Edition, 2007 Reprint
3	The Unified Modeling Language - User Guide by Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education Publication, 2009 Reprint
4	Roger S. Pressman, "Software Engineering – A Practitioner's Approach", 7th Edition, McGraw Hill Publications
5	Sommerville, "Software Engineering", 8th Edition, Pearson Education
6	An Introduction to Object-Oriented Analysis – Objects and UML in Plain English by David William Brown, John Wiley & Sons Publication, 2nd Edition

❖ Assignments (Optional):

Sr #	Description	Available From (Date)	Submission Date
1	Unit-1 and Unit-2	After 3 Weeks	Within 10 Days
2	Unit-3 and Unit-4	After 6 Weeks	Within 10 Days