IV/IV B. TECH. FIRST SEMESTER
SOFTWARE ENGINEERING (Elective-II)

Course Code: CS 7T5A	**Credits: 3**
Lecture:3 periods/week	**Internal assessment: 30 Marks**
Tutorial: 1period/week	**Semester end examination: 70 Marks**

Prerequisites: Data structures, Algorithms

Course Objectives:

1. An understanding of different software processes and how to choose between them
2. How to elicit requirements from a client and specify them
3. Designing the large, including principled choice of software architecture, the use of modules and interfaces to enable separate development, and design patterns.
4. Understanding good coding practices, including documentation, contracts, regression tests and daily builds.

Course Outcomes:

At the end of this course student will:

CO1) Understand the core principles of software engineering

CO2) Apply appropriate software process model for a given scenario

CO3) Analyze the requirements for a given problem

CO4) Apply the design paradigms to design simple software system

CO5) Identify the fundamental principle of test-driven development methods

CO6) Interpret the risk strategies to assure the quality of software

Syllabus:

UNIT 1

Software and Software Engineering: The Nature of Software, the Unique Nature of Webapps, Software Engineering, the Software

Process, Software Engineering Practice, Software Myths

Process Models: Generic Process Model, Prescriptive Process Models, Specialized Process Models, Unified Process

UNIT 2

Understanding Requirements: Eliciting Requirements, Developing Use Cases. **Requirements Modelling:** Scenario Based Modelling, Class Based Modelling

UNIT 3

Design Concepts: Design Process, Design Concepts, And The Design Model. **Architectural Design:** Architectural Styles, Architectural Design, **Component Level Design:** Designing Class Based Components

UNIT 4

Software Testing Strategies: A Strategic Approach to Software Testing, Test Strategies for Conventional Software, Test Strategies for Object Oriented Software, Validation Testing, System Testing, the Art of Debugging.

Testing Conventional Applications: White Box Testing, Black-Box Testing.

UNIT 5

Risk Management: Reactive Vs. Proactive Risk Strategies, Software Risks, Risk Identification, Risk Projection, Risk Refinement, RMMM, RMMM Plan

Quality Management: What Is Quality, Software Quality

Software Quality Assurance: Elements Of Software Quality Assurance, SQA Tasks, Goals And Metrics, The ISO 9000 Quality Standard, SQA Plan.

Learning Resource

Text Books

Software Engineering, 7/E , Roger S. Pressman , TMH

References

1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley
2. Software Engineering Principles and Practice, W S Jawadekar, TMH
3. Software Engineering Concepts, R Fairley, TMH.