



III Year-I Semester		T	P	C
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SOFTWARE ENGINEERING (RT31121)				

Course Description and Objectives:

The students will have a broad understanding of the discipline of software engineering and its application to the development of and management of software systems..

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

COs	Course Outcomes	POs
1	Knowledge of basic SW engineering methods and practices, and their appropriate application and general understanding of software process models such as the waterfall and evolutionary models.	1
2	Understanding of the role of scheduling, risk management, etc. project management including planning, and understanding of software requirements and the SRS document	3
3	Understanding of different software architectural styles and understanding of implementation issues such coding standards. modularity and as	4
4	Understanding of approaches to static analysis, and reviews and verification and validation including such as unit testing and understanding of software testing approaches . integration testing	2
5	Understanding of software evolution and related issues such as version management and understanding on quality control and how to ensure good quality software.	4
6	Understanding of some ethical and professional issues that are important for software engineers and development of significant teamwork and project based experience	7

Syllabus:

UNIT-I:

Introduction to Software Engineering: Software, Software Crisis, Software Engineering definition, Evolution of Software Engineering Methodologies, Software Engineering Challenges. Software Processes: Software Process, Process Classification, Phased development life cycle, Software Development Process Models- Process, use, applicability and Advantages/limitations

UNIT II:

Requirements Engineering: Software Requirements, Requirements engineering Process, Requirements elicitation, Requirements Analysis, Structured Analysis, Data Oriented Analysis, Object oriented Analysis, Prototyping Analysis, Requirements Specification, Requirements Validation, requirement Management.

UNIT III:

Software Design: Software Design Process, Characteristics of Good Software Design, Design Principles, Modular Design, Design Methodologies, Structured Design, Structured Design Methodology, Transform Vs Transaction Analysis. Object-Oriented Design: Object oriented Analysis and Design Principles

UNIT IV:

Implementation: Coding Principles, Coding Process, Code verification, Code documentation

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R-13 Syllabus for IT JNTUK

Software Testing: Testing Fundamentals, Test Planning, Black Box Testing, White Box testing, Levels of Testing, Usability Testing, Regression testing, Debugging approaches

UNIT V:

Software Project Management: Project Management Essentials, What is Project management, Software Configuration Management. Project Planning and Estimation: Project Planning activities, Software Metrics and measurements, Project Size Estimation, Effort Estimation Techniques.

UNIT VI:

Software Quality: Software Quality Factors, Verification & Validation, Software Quality Assurance, The Capability Maturity Model Software Maintenance: Software maintenance, Maintenance Process Models, Maintenance Cost, Reengineering, Reengineering activities, Software Reuse.

TEXT BOOKS:

1. Software Engineering, concepts and practices, Ugrasen Suman, Cengage learning
2. Software Engineering, 8/e, Sommerville, Pearson.
3. Software Engineering, 7/e , Roger S.Pressman , TMH

REFERENCE BOOKS:

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, TMHrating Systems, Andrew S Tanenbaum 3rd edition PHI.