

SOFTWARE ENGINEERING

Course	23IT3403	Year	II	Semester	II
Course	PC	Branch	CSE/IT		
Credits	3	L – T – P	3-0-0	Pre requisites	
Continuous Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Understand the fundamentals of Software Engineering and various process models	L2
CO2	Apply project management and requirement analysis techniques for the software Projects.	L3
CO3	Use various design elements along with testing to prepare software system.	L3
CO4	Use of CASE to improve Software development and Software maintenance.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: Substantial,2: Moderate,1: Slight)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1	PO2	PSO1	PSO2
CO1	3													
CO2	3	3	3								3		1	1
CO3	3	3	3		2						3		1	1
CO4	3				3								1	1

Syllabus		
Unit No.	CONTENTS	Mapped CO
I	<p>Introduction: Evolution, Software development projects, Exploratory style of software developments, Emergence of software engineering, Notable changes in software development practices.</p> <p>Software Life Cycle Models: Basic concepts, Waterfall model and its extensions, Rapid application development, Agile development model, Spiral model.</p>	CO1
II	<p>Software Project Management: Software project management complexities, Responsibilities of a software project manager, Project Planning, Metrics for project size estimation, Project estimation techniques, Empirical Estimation techniques, COCOMO-A heuristic estimation technique, Risk Management</p> <p>Requirements Analysis and Specification: Requirements gathering and analysis, Software Requirements Specification (SRS).</p>	CO1, CO2

III	<p>Software Design: Overview of the design process, How to characterize a good software design? Cohesion and Coupling, Layered arrangement of modules, Approaches to software design</p> <p>Function-Oriented Software Design: Overview of SA/SD methodology, Structured analysis, Developing the DFD model of a system, Structured design, Detailed design, and Design Review.</p> <p>User Interface Design: Characteristics of a good user interface, Basic concepts, Types of user interfaces, Golden Rules.</p>	CO1, CO3
IV	<p>Coding and Testing: Coding, Code review, Software documentation, Testing, Unit Testing, Black-box testing, White-Box testing, Debugging, Integration testing, testing object-oriented programs, System testing.</p> <p>Software Reliability and Quality Management: Software reliability. Statistical testing, Software quality, Software quality management system, ISO 9000. SEI Capability maturity model.</p>	CO1, CO3
V	<p>Computer-Aided Software Engineering (Case): CASE and its scope, CASE environment, CASE support in the software life cycle, other characteristics of CASE tools, Towards second generation CASE Tool, and Architecture of a CASE Environment.</p> <p>Software Maintenance: Characteristics of software maintenance, Software reverse engineering, Software maintenance process models and Estimation of maintenance cost.</p>	CO1, CO4
Learning Resources		
Text Books		
<ol style="list-style-type: none"> 1. Fundamentals of Software Engineering, Rajib Mall, 5th Edition, PHI. 2. Software Engineering A practitioner’s Approach, Roger S. Pressman, 9th Edition, McGraw Hill International Edition. 		
Reference Books		
<ol style="list-style-type: none"> 1. Software Engineering, Ian Sommerville, 10th Edition, Pearson. 2. Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press. 		
E-Resources & other digital material		
<ol style="list-style-type: none"> 1) https://nptel.ac.in/courses/106/105/106105182/ 2) https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01260589506387148_827_shared/overview 3) https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01338269041100390_4735_shared/overview 		