



SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
 (AUTONOMOUS)
 Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
 NAAC with "A" Grade - 3.32 CGPA Recognized under 2(f) & 12(B) of UGC Act 1956,
 Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
 Seetharampuram, W.G. DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF INFORMATION TECHNOLOGY

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement	
23IT4T02	Software Engineering	IV	IT	5	2024-2025	16-12-2024	
COURSE OUTCOMES							
1	Illustrate various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance. (K3)						
2	Analyze various software engineering models and apply methods for design and development of software projects. (K4)						
3	Develop system designs using appropriate techniques. (K3)						
4	Outline various testing techniques for a software project. (K2)						
5	Apply standards, CASE tools and techniques for engineering software projects. (K3)						
UNIT	Out Comes / Bloom's Level	Topic s No.	Topics/ Activity	Text Book/ Ref	Contact Hour	Delivery Method	
I	CO – 1	SOFTWARE ENGINEERING OVERVIEW					
		1.1	Introduction: Evolution	T1, T2	1	Chalk & Board	
		1.2	Software development projects	T1, T2	1		
		1.3	Exploratory style of software developments	T1, T2	1		
		1.4	Emergence of software engineering	T1, T2	1		
		1.5	Notable changes in software development	T1, T2	1		
		1.6	Computer system engineering	T1, T2	1		
		SOFTWARE LIFE CYCLE MODELS					E-Learning through NPTEL Assignment
		1.7	Basic concepts, Waterfall model and its	T1, T2	1		
		1.8	Rapid application development	T1, T2	1		
				1.9	Agile development model, Spiral model	T1, T2	1
Content beyond syllabus		1.10	Hybrid Models (Water-Scrum-Fall)	T1, R1	1		
				Total	10		
II	CO – 2	SOFTWARE PROJECT MANAGEMENT					
		2.1	Software project management complexities	T1, T2	1	Chalk & Board	
		2.2	Responsibilities of a software project manager	T1, T2	1		
		2.3	Metrics for project size estimation	T1, T2	1		
		2.4	Project estimation techniques, Empirical	T1, T2	1		
		2.5	COCOMO, Halstead's software science	T1, T2	1		
		2.6	Risk management	T1, T2	1		
		REQUIREMENTS ANALYSIS AND SPECIFICATION					E-Learning through NPTEL Assignment
		2.7	Requirements gathering and analysis	T1, T2	1		
		2.8	Software Requirements Specification (SRS)	T1, T2	1		
		2.9	Formal system specification	T1, T2	1		
		2.10	Axiomatic specification, Algebraic specification	T1, T2	1		
				2.11	Executable specification and 4GL	T1, T2	1
Content beyond syllabus		2.12	Requirements Elicitation	T1, T2	1		



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					Total	12	
III	CO – 3	SOFTWARE DESIGN					Chalk & Board Power point presentations Video Lecture E-Learning through NPTEL Assignment Test
		3.1	Overview of the design process	T1, T2	1		
		3.2	How to characterize a good software design.	T1, T2	1		
		3.3	Layered arrangement of modules	T1, T2	1		
		3.4	Cohesion and Coupling	T1, T2	1		
		3.5	Approaches to software design	T1, T2	1		
		AGILITY					
		3.6	Agility and the Cost of Change	T1, T2	1		
		3.7	Agile Process, Extreme Programming (XP)	T1, T2	1		
		3.8	Other Agile Process Models	T1, T2	1		
		3.9	Tool Set for the Agile Process		1		
		FUNCTION-ORIENTED SOFTWARE DESIGN					
		3.10	Overview of SA/SD methodology	T1, T2	1		
		3.11	Structured analysis	T1, T2	1		
		3.12	Developing the DFD model of a system	T1, T2	1		
		3.13	Structured design	T1, T2	1		
		3.14	Detailed design, and Design Review	T1, T2	1		
		USER INTERFACE DESIGN					
		3.15	Characteristics of a good user interface	T1, T2	1		
		3.16	Basic concepts, Types of user interfaces	T1, T2	1		
3.17	Fundamentals of component-based GUI development	T1, T2	1				
3.18	User interface design methodology	T1, T2	1				
Content beyond syllabus		3.19	Next-Generation Agile Practices	T1, R2	1		
Total					19		
IV	CO – 4	CODING AND TESTING					Chalk & Board Power point presentations Video Lecture E-Learning through NPTEL Assignment Test
		4.1	Coding, Code review	T1, T2	1		
		4.2	Software documentation	T1, T2	1		
		4.3	Testing, Black-box testing	T1, T2	1		
		4.4	White Box testing	T1, T2	1		
		4.5	Debugging	T1, T2	1		
		4.6	Program analysis tools	T1, T2	1		
		4.7	Integration testing, Testing object-oriented programs	T1, T2	1		
		4.8	Smoke testing, and some general issues associated with testing	T1, T2	1		
		SOFTWARE RELIABILITY AND QUALITY					
		4.9	Software reliability	T1, T2	1		
		4.10	Statistical testing	T1, T2	1		
		4.11	Software quality, Software quality management system	T1, T2	1		
		4.12	ISO 9000, SEI Capability maturity model	T1, T2	1		
		4.13	Few other important quality standards, Six Sigma	T1, T2	1		
Content beyond syllabus		4.14	Chaos Testing	T1, R2	1		
Total					14		

Chalk
&
Board
Power point
presentations
Video Lecture
E-Learning
through
NPTEL
Assignment

Test

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V	CO – 5	COMPUTER-AIDED SOFTWARE ENGINEERING				Chalk & Board
		5.1	CASE and its scope, CASE environment	T1, R2	1	
		5.2	CASE support in the software life cycle	T1, R2	1	
		5.3	Characteristics of CASE tools	T1, R2	1	
		5.4	Towards second generation CASE Tool	T1, R2	1	
		5.5	Architecture of a CASE Environment	T1, R2	1	Power point presentations
		SOFTWARE MAINTENANCE				
		5.6	Characteristics of software maintenance	T1, R2	1	Video Lecture
		5.7	Software reverse engineering	T1, R1	1	
		5.8	Software maintenance process models	T1, R1	1	E-Learning through NPTEL
		5.9	Estimation of maintenance cost	T1, R2	1	
		SOFTWARE REUSE				
		5.10	Reuse- definition, introduction	T1, R2	1	Assignment
		5.11	Reason behind no reuse so far, Basic issues in any reuse program	T1, R2	1	
5.12	A reuse approach and Reuse at organization level	T1, R2	1	Test		
Content beyond syllabus		5.13	Intelligent CASE (I-CASE) Tools	T1, R1	1	
Total					13	
Cumulative Proposed Periods					68	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Rajib Mall, “Fundamentals of Software Engineering”, 5th Edition, PHI 2018.					
2	Roger S. Pressman, “Software Engineering A practitioner’s Approach”, 9th Edition, Mc- Graw Hill International Edition 2023.					
Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Ian Sommerville, “Software Engineering”, 10th Edition, Pearson, 2021.					
2	Deepak Jain, “Software Engineering, Principles and Practices”, Oxford University Press, 2008.					
Web Details:						
1	https://nptel.ac.in/courses/106105087					
2	https://www.tutorialspoint.com/software_engineering/index.htm					
3	https://www.geeksforgeeks.org/software-engineering/					
4	https://en.wikipedia.org/wiki/Software_engineering					

		Name	Signature with Date
i.	Faculty	Mr Ch Praveen	<i>Ch Praveen</i>
ii.	Module Coordinator	Mr Ch R K Raju	<i>Ch R K Raju</i>
iii.	Programme Coordinator	Dr. RVVS Prasad	<i>Dr. RVVS Prasad</i>

Principal
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