	Understand										
Level 2	Apply	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	Analyze										
Level 3	Evaluate	10%	10%	15%	15%	15%	15%	15%	15%	15%	15%
	Create										
	Total	100 %		100 %		100 %		100 %		100%	

CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc

Course Designers		
Experts from Industry	**Experts from Higher Technical Institutions**	**Internal Experts**
Mr. S. Karthik, IT Analyst, Tata Consultancy Services	Dr. Neelanarayanan,, Professor, School of Computer Science and Engineering, VIT Chennai	Dr. P.Muthulakshmi
		Dr. S.Kanchana

Course Code	***USA20503J***	**Course Name**	**SOFTWARE ENGINEERING AND TESTING**	**Course Category**	**C**	***Professional Core Course***	**L**	**T**	**P**	**C**
							4	**0**	**2**	**5**

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Computer Science	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to,
CLR-1 :	*Familiarize the software life cycle models and software development process*
CLR-2 :	*Understand the various techniques for requirements, planning and Testing*
CLR-3 :	*Examine the basic methodologies for software design, development, testing*
CLR-4 :	*Manage user expectations and software development team*
CLR-5 :	*Acquire the latest industry knowledge like agile for development*
CLR-6 :	*Usage of tools and comply the global standards for testing*

Learning	1	2	3
	Thinking	Expected Proficiency (%)	Expected Attainment (%)

Program Learning Outcomes (PLO)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Engineering Knowledge	Problem Analysis	Design & Development	Design,	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communicatio n	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO – 2	PSO – 3

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:																			
CLO-1 :	*Identify the process of project life cycle model and process*	2	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
CLO-2 :	*Analyze and specify software requirements through a productive working Relationship Customers.*	3	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
CLO-3 :	*Design the system based on Functional Oriented and Object Oriented Approach for Software Design.*	3	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
CLO-4 :	*Develop the correct and robust code for the software products*	3	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
CLO-5 :	*Perform by applying the test plan and various testing techniques*	3	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
CLO-6 :	*Analyze the key issues of Software maintenance*	3	85	80	L	H	H	H	H	-	-	M	M	L	-	H	-	-	-

Duration (hour)		24	24	24	24	24
S-1	SLO-1	The Evolving Role of Software	Computer-Based Systems	Principles of Testing	Integration testing	Performance Testing
	SLO-2	Software Engineering Definition	The System Engineering Hierarchy – System Modeling	Introduction-Testing Definition	Top down Integration testing	Factors of Governing
S-2	SLO-1	Software Characteristics	System Simulation	Phases of software	Bottom up Integration testing	Regression testing
	SLO-2	Software Applications and A Crisis	Comparison of various software Development	Error, Fault, Bug-Failure of the system –Comparison of the terms	Bi-Directional Integration	Types of regression testing
S-3	SLO-1	Software Myths	Business Process Engineering: An Overview	Types of testing-	System Integration	Software testing strategy
	SLO-2	Types Of Myths	Requirements Engineering process	Quality assurance	System Acceptance Testing	Best practice in regression testing
S-4	SLO-1	*Software Engineering : Layered Technology*	*Software requirements specification*	*Quality Control*	*Functional testing*	*Methodology for Performance Testing*
S 5-6	SLO-1	*Laboratory 1* :Problem Statement Preparation	*Laboratory 4* : Software Requirement Specification Document Preparation	*Laboratory 7* : Preparation of DFD of any Project	*Laboratory 10*: Test Case Design	*Laboratory 13* : Testing – Usage of Text
	SLO-2					
S-7	SLO-1	*Software Process*	*Characteristics of Good Requirements*	*Testing verification and validation*	*Non Functional testing*	*Tools for Performance Testing*

	SLO-2	*Software Process Models*	*Types of Requirements*	*White Box Testing*	*Functional Vs Non Functional Testing*	*Challenges for Performance Testing*
S-8	SLO-1	*Linear Sequential Model*	*Requirements Elicitation*	*Techniques of White Box Testing*	*System Testing*	*Performing Initial Test, Understanding the Criteria*
	SLO-2	*Advantages And Disadvantages*	*Requirements Analysis and Negotiation*	*Black box testing*	*Design and Architectural Verification*	*Classifying Test Cases.*
S-9	SLO-1	*Prototyping Model*	*Requirement Documentation*	*Techniques of Black box testing*	*Deployment Testing*	*Resetting the Test Cases*
	SLO-2	*Advantages And Disadvantages*	*Requirement Specification and Analysis*	*Static Testing*	*Beta Testing*	
S-10	SLO-1	*Rapid Application Development Model*	*Requirement Review, Validation*	*DYNAMIC Testing*	*Certification, Standards*	*Concluding the Results of Regression Testing*
	SLO-2		*Software Requirement Specification and System Requirement Specifications*			
S 11-12	SLO-1	*Laboratory 2 :Problem Statement Preparation*	*Laboratory 5: Drawing E-R Diagram for any project*	*Laboratory 8 : Preparation of Use case diagram of any Project*	*Laboratory 11 : l Testing – Calculator*	*Laboratory 14 : Testing Sorting*
	SLO-2					
S-13	SLO-1	Evolutionary Process Models	Characteristics of Good SRS Document	Challenges in white box testing	Testing for Compliance	Configuration testing
	SLO-2	Incremental Model	Requirement Management	Black Box Testing	Scalability Testing	compatibility testing
S-14	SLO-1	Advantages and Disadvantages	Software Prototyping	Techniques of Black Box Testing	Reliability testing	Test plan with debugging
	SLO-2	Spiral Model, WIN WIN Model	Selecting the prototyping approach	Structural testing	Stress testing	Levels of testing
S-15	SLO-1	Concurrent Development Model	Specification Principles, Representation	Static testing	Acceptance Testing	Testing tools
	SLO-2	Component Based Development	Specification Review	Verification & Validation Techniques	Acceptance Criteria	Key Issues in Software maintenance
S-16	SLO-1	Comparison of Process models	Characteristics of Good E-R Diagrams	Cyclomatic complexity	Selecting Test Cases	Examples University Previous Question Papers Discussion
	SLO-2	Advantages and Disadvantages	SRS Document	Control flow graph	Executing Tests	
S 17-18	SLO-1	*Laboratory 3* : Software Requirement Specification Document Preparation	*Laboratory 6*: Drawing E-R Diagram for any project	*Laboratory 9*: Test Case Design	*Laboratory 12* : Testing – Mark sheet	*Laboratory 15* : Testing – Login Form
	SLO-2					

Learning Resources	*1.Roger S. Pressman, (2001), "Software Engineering ", Fifth edition, McGraw-Hill Higher Education - A Division of The McGraw-Hill Companies.*	*3.William E. Perry (2006), "Effective Methods of Software Testing", 3rd Ed, Wiley India.*

	2.*Srinivasan Desikan and Gopalasamy Ramesh, "Software Testing for Principles and Practices", Pearson Education.*	4.*Renu Rajani, Pradeep Oak (2007), "Software* Testing", TMH

Learning Assessment											
Bloom's Level of Thinking		Continous Learning Assessment(50% Weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4# (10%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	20%	20%	15%	15%	15%	15%	15%	15%	15%	15%
	Understand										
Level 2	Apply	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	Analyze										
Level 3	Evaluate	10%	10%	15%	15%	15%	15%	15%	15%	15%	15%
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	Total	100 %		100 %		100 %		100 %		100%	

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		2.Mrs. S.Parimala