Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
TEITC601	Software Engineering	4	-	-	4	-	-	4
		Examination Scheme						
		ISE		MSE		ESE		
		10		30		100 (60% Weightage)		

Pre-requisite Course Codes		
After successful completion of the course, student will be able to:		
Course Outcomes	CO1	Identify the process model of SDLC to be used to solve a real world application.
	CO2	Formulate the scope of the project and its effect on project cost and effort estimation.
	CO3	Apply design principal to design the candidate system and measure quality.
	CO4	Identify different types of risk, plan resource allocation and apply configuration management techniques.
	CO5	Design test cases to verify and validate the system

Module No.	Topics	Ref.	Hrs.
1	**Introduction to Software Engineering** Professional Software Development, Layered Technology, Process framework, CMM, Process Patterns and Assessment	1, 2	3
2	**Process Models** Prescriptive Models : Waterfall Model, Incremental, RAD Models Evolutionary Process Models: Prototyping, Spiral and Concurrent Development Model Specialized Models: Component based, Aspect Oriented development	1, 2	6
3	**Agile Software Development** Agile Process and Process Models, Adaptive and Dynamic system Development, Scrum, Feature Driven Development and Agile Modeling.	1, 2	3
4	**Engineering and Modeling Practices** Core Principles, Communication, Planning, Modeling, Construction and deployment. System Modeling and UML	1, 2	4
5	**Requirements Engineering and Analysis Model** Requirements Engineering Tasks, Elicitation, building analysis model, Data Modeling concepts, Object Oriented Analysis	1, 3	6
6	**Design Engineering** Design Concepts, Design Model – Data, Architecture, Interface, Component Level and Deployment Level design elements	1, 2	5
7	**Testing strategies and tactics** Testing strategies for conventional and Object Oriented architectures,	1, 2	6

	Validation and system testing. Software testing fundamentals, Black box & white box testing, object oriented testing methods.		
8	**Metrics for Process and Projects** Process Metrics and Project Metrics, Software Measurement, Object Oriented Metrics, Software Project Estimation, Decomposition Techniques, LOC based, FP based and Use case based estimations, Empirical estimation Models	1, 3	6
9	**Risk Management** Risk strategies, Software risks, Risk Identification, Projection, RMMM	1, 2	3
10	**Quality Management** Quality Concepts, SQA activities, Software reviews, FTR, Software reliability and measures, SQA plan	1, 2	3
11	**Change management** Software Configuration Management, elements of SCM, SCM Process, Change Control	1, 2	3
Total hours of instructions			48

References:

1. Roger Pressman "*Software Engineering:A Practitioner's Approach*" Sixth Edition.
2. Ian Sommerville, "*Software Engineering*", Pearson.
3. Pankaj Jalote, "*Software Engineering : A Precise Approach*" Wiley India.