



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
CPC602	Software Engineering	4	-	--	4	-	--	4
		Examination Scheme						
		ISE		MSE		ESE		
		10		30		100 (60% Weightage)		

Pre-requisite Course Codes	CPC503 (Structured and Object-Oriented Analysis and Design)	
At end of successful completion of this course, student will be able to		
Course Outcomes	CO1	Plan, design, develop and validate software project.
	CO2	Apply estimation and scheduling techniques.
	CO3	Analyze and mitigate risks in software project.
	CO4	Apply advance software methodology to create high quality WebApps.

Module No.	Topics	Ref.	Hrs.
1	Introduction Software Engineering Process Paradigms, Process Models – Incremental and Evolutionary models, Typical Application for each model, Agile methodology, Process and Project Metrics.	1-6	06
2	Software project scheduling, Control & Monitoring Software estimation – Empirical estimation models -Cost/Effort estimation Planning – Work breakdown Structure, Gantt Chart. Discuss schedule and cost slippage.	1-6	04
3	Risk Management Risk Identification, Risk Assessment, Risk Projection, RMMM	1-6	04
4	Software Configuration Management Software Configuration items, SCM process, Identification of objects in software configuration, version and change control, configuration audit, status reporting, SCM standards and SCM issues.	1-6	04
5	Software Design Specification Software Design – Abstraction, Modularity Software Architecture – Effective modular design, Cohesion and Coupling, Example of code for cohesion and coupling, User Interface Design – Human Factors, Interface	1-6	08



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	standards, DesignIssues – User Interface Design Process.		
6	Software Quality Software Quality Assurance – Software standards , Quality metrics Software Reliability ,QualityMeasurement and Metrics	1-6	04
7	Software Testing Basic concept and terminology, Verification & validation, White BoxTesting- Path Testing, Control Structures Testing , DEF-USE testing,Black Box Testing –BVA Integration, Validation and system testing, OO testing methods-Class Testing, Interclass testing, testing architecture, Behavioral testing, Software Maintenance – Reverse Engineering.	1-6	12
8	Web Engineering For web based applications – attributes, analysis and design, testing, Security Engineering, Service-Oriented Software Engineering, Test Driven Development, Software engineering with aspects	1-6	06
Total			48

References:

- [1] Roger Pressman, Software Engineering: A Practitioners Approach, (6th Edition), McGraw Hill, 2010
- [2] Ian Somerville, Software Engineering, 9th edition, Addison Wesley, 2011
- [3] Eric J. Braude and Micheal E. Bernstein, Software Engineering Modern Approach, 2nd edition, Wiley, 2011.
- [4] Ali Behforooz Fredrick Hudson, Software Engineering Fundamentals, Oxford University Press, 2006.
- [5] James F. Peters and Witold Pedrycz, “ Software Engineering – An Engineering Approach”, Wiley.
- [6] Mouratidis and Giorgini. “Integrating Security and Software Engineering – Advances and Future”, IGP. ISBN – 1-59904-148-0