



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
CPE7024	Elective-II Software Architecture	4	-	-	4	-	-	4
		Examination Scheme						
		ISE		MSE		ESE		
		10	30	100 (60% Weightage)				

Pre-requisite Course Codes		-
At end of successful completion of this course, student will be able to		
Course Outcomes	CO1	Visualize the architectural concepts in development of large, practical software-intensive applications.
	CO2	Rather than focusing on one method, notation, tool, or process, this new course widely surveys software architecture techniques, enabling us to choose the right tool for the job at hand.

Module No.	Unit No.	Topics	Ref.	Hrs.
1	1	Basic Concepts:	1,2,3	3
	1.1	Concepts of Software Architecture		
	1.2	Models.		
	1.3	Processes.		
	1.4	Stakeholders		
2	2	Designing Architectures:	1,2,3	2
	2.1	The Design Process.		
	2.2	Architectural Conception.		
	2.3	Refined Experience in Action: Styles and Architectural Patterns.		
	2.4	Architectural Conception in Absence of Experience.		
3	3	Connectors	1,2,3	6
	3.1	Connectors in Action: A Motivating Example.		
	3.2	Connector Foundations.		
	3.3	Connector Roles.		
	3.4	Connector Types and Their Variation Dimensions.		
	3.5	Example Connectors		
4	4	Modeling	1,2,3	4
	4.1	Modeling Concepts.		
	4.2	Ambiguity, Accuracy, and Precision.		
	4.3	Complex Modeling: Mixed Content and Multiple Views.		



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	4.4	Evaluating Modeling Techniques.		
	4.5	Specific Modeling Techniques		
5	5	Analysis	1,2,3	8
	5.1	Analysis Goals.		
	5.2	Scope of Analysis.		
	5.3	Architectural Concern being Analyzed.		
	5.4	Level of Formality of Architectural Models.		
		Type of Analysis.		
		Analysis Techniques		
6	6	Implementation and Deployment	1,2,3	4
	6.1	Concepts.		
	6.2	Existing Frameworks.		
	6.3	Software Architecture and Deployment		
	6.4	Software Architecture and Mobility.		
7	7	Conventional Architectural styles	1,2,3	5
	7.1	Pipes and Filters		
	7.2	Event- based, Implicit Invocation		
	7.3	Layered systems		
	7.4	Repositories		
	7.5	Interpreters		
	7.6	Process control		
8	8	Applied Architectures and Styles	1,2,3	8
	8.1	Distributed and Networked Architectures.		
	8.2	Architectures for Network-Based Applications.		
	8.3	Decentralized Architectures.		
	8.4	Service -Oriented Architectures and Web Services.		
9	9	Designing for Non-Functional Properties	1,2,3	4
	9.1	Efficiency.		
	9.2	Complexity.		
	9.3	Scalability and Heterogeneity.		
	9.4	Adaptability.		
	9.5	Dependability.		
10	10	Domain-Specific Software Engineering	1,2,3	4
	10.1	Domain-Specific Software Engineering in a Nutshell.		
	10.2	Domain-Specific Software Architecture.		
	10.3	DSSAs, Product Lines, and Architectural Styles.		
			Total	48

References:



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- [1] "Information Technology Project Management", Jack T. Marchewka, 3rd edition, Wiley India, 2009.
- [2] S. J. Mantel, J. R. Meredith and etl.. "Project Management" 1st edition, Wiley India, 2009.
- [3] John M. Nicholas, "Project Management for Business and Technology", 2nd edition, Pearson Education.
- [4] Joel Henry, "Software Project Management, A realworld guide to success", Pearson Education, 2008.
- [5] Gido and Clements, "Successful Project Management", 2nd edition, Thomson Learning.
- [6] Hughes and Cornell, "Software Project Management", 3rd edition, Tata McGraw Hill