



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
CPC603	Distributed Database	4	-	--	4	-	--	4
		Examination Scheme						
		ISE		MSE		ESE		
		10		30		100 (60% Weightage)		

Pre-requisite Course Codes	CSC404 (Database Management System)
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At end of successful completion of this course, student will be able to

Course Outcomes	CO1	Students can understand the principles and foundations of distributed databases.
	CO2	Students can design and implement distributed database for enterprise applications using fragmentation and allocation concepts
	CO3	Students can learn the distributed transaction management and concurrency control in distributed databases using different algorithms.
	CO4	Student can understand deadlock handling and database recovery in distributed environment.
	CO5	Student can understand the query processing and optimization and also to learn the Architecture of Heterogeneous Database.
	CO6	To learn the integration of schemas using XML.

Module No.	Topics	Ref.	Hrs.
1	Concept and Overview Distributed Database system What is Distributed Database System (DDBS), Features of DDBS, promises of DDBS, Design issue in DDBS, Distributed DBMS architecture: Client/server System, Peer-to-Peer, Mutli-Databasesystem.	1-5	08
2	Distributed Database Design Distributed database design concept, objective of Data Distribution, Data Fragmentation, The allocation of fragment , Transparencies in Distributed Database Design	1-5	08
3	Distributed Transaction and concurrency control Basic concept of Transaction management, objective Distributed transaction management, Model for Transaction management, Distributed Concurrency control: Objective, concurrency	1-5	08



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	control anomalies, Distributed Serializability, Locking based algorithm, Timestamp based algorithm.		
4	Distributed Deadlock and Recovery Introduction to Deadlock, Distributed Deadlock prevention, avoidance, detection and recovery, Two-Phase and Three-Phase Commit Protocol.	1-5	06
5	Distributed query processing and optimization Concept, objective, and phases of distributed query processing; join strategies in fragment relation, Global query optimization	1-5	04
6	Heterogeneous Database Architecture of Heterogeneous Database, Database Integration: Schema Translation and schema Integration, Query processing issues in Heterogeneous database.	1-5	06
7	XML XML for data integration, structure of XML, XML document schema, Querying and Transformation, storage of XML data, XML application.	1-5	08
Total			48

References:

- [1] ChhandaRay, "Distributed Database System", Pearson Education India.
- [2] A. Siberschatz, H. Korth, "Database System", Six Edition, Mc-Graw Hill.
- [3] Seed K. Rahimi and Frank S. Haug, "Distributed Database Management System", Wiley India.
- [4] M. Tamer Ozsu, Patrick Valduriez, "Principles of Distributed Database", Pearson Education India.
- [5] Elmasri and Navathe, "Fundamentals of Database Systems", 6th Edition, Pearson Education India.