

## DISTRIBUTED DATABASES

<b>Course Code</b>		<b>Year</b>	III	<b>Semester</b>	II
<b>Course Category</b>	Honors	<b>Branch</b>	CSE	<b>Course Type</b>	Theory
<b>Credits</b>	4	<b>L-T-P</b>	4-0-0	<b>Prerequisites</b>	Database Management Systems
<b>Continuous Internal Evaluation :</b>	30	<b>Semester End Evaluation:</b>	70	<b>Total Marks:</b>	100

### Course Outcomes

Upon successful completion of the course, the student will be able to

<b>CO1</b>	Understand the principles of Distributed Databases, Architectures and Design	<b>L2</b>
<b>CO2</b>	Apply the concepts of query processing and optimization for Distributed Databases	<b>L3</b>
<b>CO3</b>	Apply reliability concepts to analyse various reliability features of a distributed database.	<b>L3</b>
<b>CO4</b>	Analyze various mechanisms/algorithms of Transactions for a given context	<b>L4</b>

### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	3													
<b>CO2</b>	2								2	2			3	
<b>CO3</b>	2								2	2			2	
<b>CO4</b>		2							2	2			3	3

<b>Syllabus</b>		
<b>UNIT-1</b>	<b>Introduction;</b> Distributed Data Processing, Distributed Database System, Promises of DDBSs, Design Issues <b>Distributed DBMS Architecture:</b> Architectural Models for Distributed DBMS. <b>Distributed Database Design:</b> Top-Down Design Process, Distribution Design issues, Fragmentation, Allocation	<b>CO1</b>
<b>UNIT-2</b>	<b>Query processing and decomposition:</b> Query processing objectives, characterization of query processors, layers of query processing, query decomposition, localization of distributed data.	<b>CO1,CO2</b>
<b>UNIT-3</b>	<b>Distributed query Optimization:</b> Query optimization, centralized query optimization, Join Ordering in Distributed Queries ,distributed query optimization algorithms	<b>CO1,CO2</b>
<b>UNIT-4</b>	<b>Transaction Management:</b> Definition, properties of transaction, types of transactions, distributed concurrency control: serializability, concurrency control mechanisms & algorithms, time - stamped & optimistic concurrency control Algorithms.	<b>CO1, CO4</b>
<b>UNIT-5</b>	<b>Distributed DBMS Reliability:</b> Reliability concepts and measures, fault-tolerance in distributed systems, failures in Distributed DBMS, local & distributed reliability protocols.	<b>CO1,CO3</b>

<b>Learning Resources</b>	
<b>Text books:</b>	
1	Principles of Distributed Database Systems, M. Tamer OZSU and Patuck Valduriez, 2011, Pearson Edition.
<b>References:</b>	
1	Distributed Databases, Stefano Ceri and Giuseppe Pelagatti, McGraw Hill.
2	Database Systems: The Complete Book ,Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom, Second Edition, Pearson International Edition
<b>e-Resources and other Digital Material:</b>	
1	<a href="https://www.my-mooc.com/en/mooc/distributed-database-systems/">https://www.my-mooc.com/en/mooc/distributed-database-systems/</a>