DISTRIBUTED DATABASES

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

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the principles of Distributed Databases, Architectures and Design	**L2**
CO2	Apply the concepts of query processing and optimization for Distributed Databases	**L3**
CO3	Apply reliability concepts to analyse various reliability features of a distributed database.	**L3**
CO4	Analyze various mechanisms/algorithms of Transactions for a given context	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	√													
CO2	√								√	√			√	
CO3	√								√	√			√	
CO4		√							√	√			√	√

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

Learning Resources	
Text books:	
1	Principles of Distributed Database Systems, M. Tamer OZSU and Patuck Valduriez, 2011, Pearson Edition.
References:	
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
e-Resources and other Digital Material:	
1	https://www.my-mooc.com/en/mooc/distributed-database-systems/