Course Code	Course Name	Theory	Practical	Tutorial	Theory	TW/ Practical	Tutorial	Total
ITL503	OLAP Lab	--	2	--	--	1	--	01

Course Code	Course Name	Examination Scheme							
		Theory Marks				Term Work	Oral & Practical	Oral	Total
		Internal assessment			End Sem. Exam				
		Test	Test2	Avg. of two Tests					
ITL503	OLAP Lab	--	--	--	--	25	--	25	50

Lab Objectives: Students will try:

1. To introduce advanced concepts of transaction management and recovery techniques.
2. To impart knowledge related to query processing and query optimizer phases of a database management system
3. To initiate awareness about the potential security threats that exists in database systems and how to tackle them.
4. To introduce advanced database models like distributed databases.
5. To impart an overview of emerging data models like temporal, mobile and spatial databases.
6. To create awareness of how enterprise can organize and analyze large amounts of data by creating a Data Warehouse.

Lab Outcomes: Student should be able:

1. Implement simple query optimizers and design alternate efficient paths for query execution**.**
2. Simulate the working of concurrency protocols, recovery mechanisms in a database
3. Design applications using advanced models like mobile, spatial databases**.**
4. Implement a distributed database and understand its query processing and transaction processing mechanisms
5. Build a data warehouse
6. Analyze data using OLAP operations so as to take strategic decisions.

Hardware and Software requirements:

Hardware Requirements	**Software Requirements**
PC With following Configuration 1. Intel Core i3/i5/i7	1. ETL tools 2. Warehouse tools 3. Java/Python compiler

Processor 2. 4 GB RAM 3. 500 GB Harddisk	

Prerequisite: DBMS.

Detailed syllabus:

Module No.	Detailed Content	Hours	CO Mapping
I	a) Implementation of any Query optimizer (Java/Python) b) Assignments for query evaluation path expressions.	4	LO 2
II	c) Simulation of Concurrency Control Algorithm, Recovery Algorithm (Java/Python)	4	LO1
III	a) Design of a distributed database for a real life application - Fragmentation, Query Processing b) Simulation of Recovery methods.	4	LO 4
IV	**Advanced Database Models** Case study based assignments for Temporal, Mobile or Spatial databases	4	LO 3
V	**Data Warehouse Construction** a) Real life Problem to be defined for Warehouse Design b) Construction of star schema c) ETL Operations.	6	LO 4
VI	**OLAP Exercise** a) Construction of Cubes b) OLAP Operations, OLAP Queries	4	LO 6

Text Books:

1. Elmasri and Navathe, “Fundamentals of Database Systems”, 6th Edition, PEARSON Education.
2. Theraja Reema, “Data Warehousing”, Oxford University Press, 2009.
3. Data Warehousing, Data Mining, & OLAP by Alex Berson McGraw Hill.

References:

1. Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom “Database System Implementation”, Pearson Ltd. 1/ e
2. Thomas M. Connolly Carolyn Begg, Database Systems : A Practical Approach to Design, Implementation and Management, 4/e Pearson Ltd

3. Ralph Kimball, Margy Ross, “The Data Warehouse Toolkit: The Definitive Guide To Dimensional Modeling”, 3rd Edition. Wiley India.

Term Work:
Term Work shall consist of at least 10 to 12 practical’s based on the above list. Also Term work Journal must include at least 2 assignments.
Term Work Marks: 25 Marks (Total marks) = 15 Marks (Experiment) + 5 Marks (Assignments) + 5 Marks (Attendance)

Oral Exam: An Oral exam will be held based on the above syllabus.