DSE-02 (b): Advance DBMS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Advance DBMS	4	2	0	2	Class XII	DSC-04

***Learning objectives*:**

1. *Explain and evaluate the fundamental theories for advanced database architectures and query operators.*
2. *Design and implement parallel database systems with evaluating different methods of storing, managing of parallel database.*
3. *Assess and apply database functions of distributed database.*

Learning Outcomes:

1. *Identify advance database concepts and database models.*
2. *Apply and analyze various terms related to transaction management in centralized and distributed database.*
3. *Learn concept of transactional processing and its commands.*
4. *Improve the database design by normalization.*
5. *Administer and analyze database with query optimization technique*

UNIT-I **(5 hours)**

Introduction: Formal review of relational database and FDs Implication, Closure, its correctness.

UNIT-II **(5 hours)**

Normalization: 3NF and BCNF, Decomposition and synthesis approaches, Review of SQL Queries, Basics of query processing, Query optimization, external sorting, file scans.

UNIT-III **(5 hours)**

Transactional Control: Commit, Save point, Rollback, DCL Commands: Grant and Revoke, Types of locks: Row level locks, Table level locks, Shared lock, Exclusive lock, Deadlock.

UNIT-IV **(5 hours)**

Creating and altering Views: Fundamentals of Database Triggers, Creating Triggers, Types of Triggers: Before, after for each row, for each statement, Basics of PL/SQL.

UNIT-V **(10 hours)**

T/O based techniques: Multiversion approaches, Comparison of CC methods, dynamic databases, Failure classification, recovery algorithm, XML and relational databases.

***References*:**

1. R. Ramakrishnan, J. Gehrke, Database Management Systems, McGraw Hill, 2004
2. A. Silberschatz, H. Korth, S. Sudarshan, Database system concepts, 5/e, McGraw Hill, 2008.
3. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.

***List of Practicals :*(60 hours)**

1. Perform queries for DCL Commands and Locks.
2. Implement authorization, authentication, and privileges on database.
3. Perform queries to Create synonyms, sequence and index.
4. Perform queries to Create, alter and update views.
5. Implement PL/SQL programmes using control structures.
6. Implement PL/SQL programmes using Cursors.
7. Implement PL/SQL programmes using exception handling.
8. Implement user defined procedures and functions using PL/SQL blocks.
9. Perform various operations on packages.
10. Implement various triggers.
11. Practice on functional dependencies
12. Practice on Normalization – using any database perform various normal forms.
13. Practice on transaction processing.