

Subject Code: 1ET1100301	Subject Title: Database Management Systems
Prerequisite	--

Course Objective: The core objective of this course is to make the students aware and have some expertise with various facets of database design methodology in oracle database, Microsoft SQL Server, MySQL etc. used in industry now days. This course aims to present various, Relational Database, Storage Architecture, Query Language & Processing, Normalization, Function Dependency used for database design during software development. This course shall act as platforms for the students wishing to carry out further development in database management for large enterprise.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	2	5	70	30	30	20	150

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Introduction: Purpose & Applications, Database Architecture, Type of DBMS, Data Model, Users Role & Responsibility, Transaction Management	02	05
2	Relational Model: Structure of Relational Database, Database Schema, Keys, Relational Algebra Operations, Relational Algebra Query Language	04	10
3	SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Integrity Constraint, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Sub queries, Modification of the Database, Join Expressions, Aggregation Features	04	10
4	E-R Model: Overview, Constraints, E-R Diagrams, E-R Design Issues, Advance E-R Model	03	10
5	Database Design: Features of Good Database Design, Redundancy, Functional Dependency, Decomposition, Normalizations, Normal Forms,	05	15
6	Query Processing & Optimization: Overview, Estimating of Query Cost, Evaluation of Expressions, Evaluation Plan, Selection Operation, Sorting, Join Operations, Indexing, Ordered Indices, B+ Tree Index, Static and Dynamic Hashing	05	15
7	Transaction Management: Concept, Transaction Model, ACID Property, Serializability, Transaction Protocols, Deadlock Handling, Recovery	04	15
8	Advance SQL: Views, Index, Transactions, Authorization, Functions and Procedures, Triggers, Cursor	02	10
9	Case Study: Postgre SQL, MySQL	02	10

Course Outcome:

After learning the course, the students should be able to:

- Understand the business data and relation between data
- Use of Technology to store the large data
- Efficiently usage of data in short response time
- Access control over the data
- Design of database for real life project

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the business data and relation between data	Understanding

CLO2	Use of Technology to store the large data	Understanding, Applying
CLO3	Efficiently usage of data in short response time	Applying
CLO4	Access control over the data	Analyzing
CLO5	Design of database for real life project	Analyzing, Evaluating

Mapping of CLOs with POs & PSOs

Course	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	M	H	M	H	H	M	L		M	M	M	M	M	H	L	L
CLO2	M	M	H	M	M	M	L		M	M	L	L	H	M	M	M
CLO3	H	M	H	M	H	H	M		M	L	M	M	H	M	M	M
CLO4	H	H	M	H	H	H	L		M	M	M	L	H	M	M	M
CLO5	M	H	H	H	M	M	L		M	M	M	L	M	H	M	M

H:High, M:Medium, L:Low

List of References:

1. Database System Concepts, Abraham Silberschatz, Henry F. Korth & S. Sudarshan, McGraw Hill.
2. An introduction to Database Systems, C J Date, Addition-Wesley.
3. SQL- PL/SQL by Ivan bayross
4. Oracle – The complete reference – TMH /oracle press

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

- (1) To study DDL and DML commands.
- (2) Create table and insert sample data in tables.
- (3) Perform query involving retrieve, update, and delete record in a table.
- (4) Perform query using arithmetic and logical operators.
- (5) Perform queries involving pattern matching predicates.
- (6) Perform query using aggregate, numeric and string functions.
- (7) Using Union, Intersect and Minus Clause.
- (8) Perform query using order by, group by and having clause.
- (9) To study transaction control commands.
- (10) Perform PL/SQL programs.
- (11) To study trigger and cursor.