

Branch Name:	Computer Engineering / Information Technology
Program Code:	ET404 / ET407
Course Title:	Database Management System
Course Code:	2ET4040303
Pre-requisite Course:	Basic requirements of a programming language.

Course Objectives:

1. To explain basic database concepts, applications, data models, schemas and instances.
2. Understand how to organize, maintain and retrieve information efficiently from a DBMS.
3. Design, Develop and manage databases for simple applications using Structured Query Language (SQL) in ORACLE.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	4	5	60	40	40	60	200

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
Unit-1	Introduction to Database System 1.1 Concepts and definitions of database, operations, data, information, 1.2 Fields, Records, Files, Metadata, 1.3 System Catalog, Functions and responsibilities of DBA, 1.4 Advantages of DBMS	08	20
Unit-2	Database System Architecture 2.1 ThreelevelANSI-SPARC architecture, Schema 2.2 Sub-schema and Instances, Data Independence, 2.3 Mappings, Functions and services of DBMS 2.4 Logical Data Models, Types of Database System	08	20
Unit-3	Introduction to SQL 3.1 Basic Data Types, DDL-CREATE, ALTER, TRUNCATE, DROP 3.2 DML-INSERT, SELECT, UPDATE, DELETE 3.3 DQL, DCL, SQL Operators and Functions 3.4 Group By, Having and Order by clause, 3.5 SQL Operations	12	25
Unit-4	Database Integrity Constraints 4.1 Entity Integrity Constraints - Domain Integrity and Key Constraints, 4.2 Referential Integrity Constraints	06	15
Unit-5	Entity Relational Model 5.1 E-R concepts, Symbols, Types of Entities, 5.2 Types of Attributes, Keys, Participation Constraints, 5.3 Weak Entity Sets, Mapping Cardinalities 5.4 Problems with E-R, Specialization, Generalization	08	20

SUGGESTED LIST OF EXERCISES/PRACTICAL/EXPERIMENTS:

1. Understand environment and platform of SQL/Oracle database software.
2. Implement SQL queries to perform various DDL commands and create minimum 5 tables with different data types.
3. Implement SQL queries to insert records in existing databases.
4. Implement SQL queries to perform various DML commands such as updating records and deleting records.
5. Perform DQL command such as SELECT command to retrieve data from the database using WHERE clause.
6. Perform Order by clause to sorting records in ascending and descending order.

7. Implement SQL queries to perform various DDL commands like ALTER, DROP, TRUNCATE.
8. Understand and perform DCL operations such as COMMIT and ROLLBACK commands.
9. Implement SQL queries to understand Group by and having clause

Text Books:

- Database Management System by Dr Rajiv chopra (S CHAND)

Reference Books:

-An Introduction to Database Systems by C. J. Date (Pearson Education, New Delhi)

-Database System Concepts by Henry Korth (McGraw Hill, Delhi)

List of Open-Source Software/learning website:

DBMS: -<http://nptel.iitm.ac.in/video.php?subjectId=106106093>

SQL Basic Concepts: -<http://www.w3schools.com/sql/>

SQL Tutorial: -<http://beginner-sql-tutorial.com/sql.html>

Database Tutorials: -<http://www.roseindia.net/programming-tutorial/Database-Tutorials>

Course Learning Outcomes (CLO):

1. Apply the basic concepts of Database Systems and Applications.
2. Use the basics of SQL and construct queries using SQL in database creation and interaction.
3. Design a commercial relational database system (Oracle) by writing SQL using the system.
4. Analyze and Select storage and recovery techniques of database system.
5. Design ER-model store present simple database application scenarios
6. Explain the basic concepts of relational data model, entity-relationship model, Integrity constraint

Mapping of CLO with PO and PSO

Course Learning Outcomes	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		M										M			
CLO2	H		M										L			
CLO3	H		H				M						H			
CLO4	M					L							M			
CLO5	H	M		M			H						H			
CLO6	M	L		L									M			

H: High, M: Medium, L: Low