

Subject Code: 1ET4000303	Subject Title: Database Management System
Pre-Requisite	--

RATIONALE:

The aim of this subject is to get broad understanding of the basic concepts of database management system. A database management system (DBMS) allows entering, store, manipulating and retrieving information organized into data bases. The students will also develop the skills to design database system and develop application programs to manage & retrieve data from different perspective using Structured Query Language (SQL) in ORACLE.

COURSE OBJECTIVE:

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

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)			
Lecture	Tutorial	Practical	Credit	Theory		Practical	
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment
3	-	4	5	60	40	40	60

DETAILS OF COURSE CONTENTS:

S. NO.	Topic and Sub-Topics	Total Hrs.	WEIGHTAGE %
Unit - 1	Introduction to Database System Concepts and definitions of database, operations, data, information, Fields, Records, Files, Metadata, System Catalog, Functions and responsibilities of DBA, Advantages of DBMS	08	20
Unit - 2	Database System Architecture Three level ANSI-SPARC architecture, Schema, Sub-schema and Instances, Data Independence, Mappings, Functions and services of DBMS, Logical Data Models, Types of Database System	08	20

Unit - 3	Introduction to SQL Basic Data Types, DDL- CREATE, ALTER, TRUNCATE, DROP, DML- INSERT, SELECT, UPDATE, DELETE, DQL, DCL, SQL Operators and Functions, Group By, Having and Order by clause, SQL Operations	12	25
Unit - 4	Database Integrity Constraints Entity Integrity Constraints - Domain Integrity and Key Constraints, Referential Integrity Constraints	06	15
Unit - 5	Entity Relational Model E-R concepts, Symbols, Types of Entities, Types of Attributes, Keys, Participation Constraints, Weak Entity Sets, Mapping Cardinalities, Problems with E-R, Specialization, Generalization	08	20

COURSE OUTCOME:

At the end of the course the students are able to:

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-models to represent simple database application scenarios
6. Explain the basic concepts of relational data model, entity-relationship model, Integrity constraints

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.

10. Implement SQL queries to perform various SQL Operators.
11. Implement SQL queries to perform various SQL functions such as Aggregate, Numeric, Character, Date, Miscellaneous functions.
12. Implement SQL queries to perform Integrity Constraints.

LIST OF REFERENCES:

Text Books

- Database System Concepts by Henry Korth (McGraw Hill, Delhi)
- SQL/ PL/SQL by Ivan Bayross (BPB, New Delhi)

Reference Books

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

E- Learning References

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.htm>

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