GUJARAT TECHNOLOGICAL UNIVERSITY

INTEGRATED MASTER OF BUSINESS ADMINISTRATION

Year – First (Semester – II) (W.E.F. Academic Year 2017-18)

Subject Name: DATA BASE MANAGEMENT SYSTEM (DBMS)

Subject Code: 2527107

1. Course Objectives:

a) This course is intended to give students basic fundamental knowledge about relational database management systems (RDBMS)
b) This course will give conceptual insight about how database design and implementation takes place.
c) The course also, gives insight about relational operations and use of databases.

Pre-requisites: Basic knowledge of working with computers

2. Course Duration: The course duration is of **45 sessions of 60 minutes** each.

3. Course Contents:

Module No.	Modules with its Contents/Chapters	No. of Sessions	Marks (out of 70)
I	**Introduction to DBMS** Basic concepts of DBMS - Data, Information, Data Management, File-based Data Management, Database Systems, Organization of a Database, Characteristics of Data in a Database, DBMS, Advantages of using a DBMS, Functions of DBMS, Components of a DBMS, Data dictionary, Database Users, Database Architecture, Data Abstraction, Logical and Physical data independence, Database languages, Database Design, Database constraints	08	14
II	**Data Models and Concepts of E-R Modeling** Conceptual, Physical and Logical Database Models, Database relationships, Hierarchical model, Network Model, Relational Model	12	21

	E-R Model - Components of an E-R Model, E-R conventions, Relationships, Composite entities, Entity list, E-R diagrams, E-R Modeling symbols , Super class, subclass entity types, E-R Diagram exercises		
III	**Relational Database Design** RDBMS terminology, Relational Data structure, Relational data manipulation, Codd's rules, Integrity constraints, Pitfalls of Relational database design, decomposition, functional dependencies, Normalization, Keys, Relationships, First Normal Form(1NF), Second Normal form(2NF), Third normal Form(3NF), Boyce-Codd Normal Form (BCNF), Denormalization, Data security	12	14
IV	**Structured Query Language (SQL)** Features of SQL, Data Definition Language (DDL), Data Manipulation Language (DML), Views, Functions in SQL, Rollback, Commit and Savepoint, Group By and Having Clauses, Subqueries, Examples of SQL	13	21
	Practical – a. **Study of Contemporary Database trends and application** **Class Presentations –(Suggestive List)-** Most popular RDBMS (like ORACLE, MYSQL etc.), Introduction of RDBMS, History, Key Features, Key Benefits / Advantages Comparison of databases (Key challenges) Data Warehouse, data mining, Big Data, Data Governance, Business Analytics etc. **b) Database Design Projects** Each group should collectively identify area or system and to the extent perform database design. The key tasks are • To identify a business problem (Application) • Build Database design (using normalization) • Implements database design (Keys, Tables, Relationships) • List relational operation	-	Internal Evaluation of CEC (30 marks)

4. Teaching Methods:

The course will use the following pedagogical tools:

a) Lectures, discussion of Newspaper articles on IT, Power point presentations
(b) IT based company visits
(c) Expert lectures, Case studies
(d) Hands on training in MS-Access
(e) Projects/ Assignments/ Quizzes/ MCQs etc.

5. Evaluation:

The evaluation of participants will be on continuous basis comprising of the following elements:

A	Projects/ Assignment/ Quizzes/ Class participation etc.	Weightage 50 Marks (Assessment of CEC)
B	Internal Examination (Mid-Semester Examination)	Weightage 30 Marks (Internal Assessment)
C	End – Semester Examination (University Examination)	Weightage 70 Marks (External Assessment)

6. Text Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
1	Instructional Software Research & Development (by ISRD) Group	Introduction to Database Management Systems	Tata McGraw Hill Publication	Latest Edition
2	Dr. Rajiv Chopra	Database Management Systems	S. Chand	Latest Edition

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

7. Reference Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
1	Ramakrishnan, Gehrke	Database Management Systems	McGraw Hill	Latest Edition
2	Alexis Leon, Mathews Leon	Essentials of Database Management Systems	Tata McGraw Hill Publication	Latest Edition
3	Elmasri and Navathe	Fundamentals of	Pearson Education	Latest Edition

		Database Systems		
4	C. J. Date, A. Kannan, S. Swamynathan	An Introduction to Database Systems	Pearson Education	Latest Edition
5	Prof. Kiran Gurbani and Prof.(Dr) Snehalkumar H Mistry	Database Management System	Himalaya Publishing House	First Edition

8. List of Journals/Periodicals/Magazines/Newspapers, etc.

Digichip, PC World, Dataquest. Database trends and application (DBTA),

9. Session Plan: (45 sessions of 60 minutes)

Session No.	Topics to be covered
1-2	Basic concepts of DBMS - Data, Information, Data Management, File-based Data Management, Database Systems,
3-5	Organization of a Database, Characteristics of Data in a Database, DBMS, Advantages of using a DBMS, Functions of DBMS, Components of a DBMS
6-8	Data dictionary, Database Users, Database Architecture, Data Abstraction, Logical and Physical data independence, Database languages, Database Design, Database constraints
9-10	Conceptual Data Models, Physical and Logical Database Models
11-13	Database relationships, Hierarchical model, Network Model, Relational Model
14-18	**E-R Model** - Components of an E-R Model, E-R conventions, Relationships, Composite entities, Entity list, E-R diagrams, E-R Modeling symbols , Super class, subclass entity types, E-R Diagram exercises
19-20	**Practical – Study of Contemporary Databases**
21-23	RDBMS terminology, Relational Data structure, Relational data manipulation, Codd's rules
24-26	Integrity constraints, Pitfalls of Relational database design, decomposition, functional dependencies,
27-32	Normalization, Keys, Relationships, First Normal Form(1NF), Second Normal form(2NF), Third normal Form(3NF), Boyce-Codd Normal Form (BCNF), Denormalization, Data security
33-35	**Structured Query Language (SQL) -** Features of SQL, Data Definition Language (DDL), Data Manipulation Language (DML), Views
36-38	**Structured Query Language (SQL)** -Functions in SQL, Rollback, Commit and Savepoint
39-41	**Structured Query Language (SQL) -** Group By and Having Clauses, Subqueries, Examples of SQL
42-45	**Practical - Database design project using MS Access**

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