GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Business Administration, 1st Semester
Subject Name: Relational Database Management System
Subject Code: 1519605

1. Learning Outcomes:

Learning Outcome Component	Learning Outcome (Learner will be able to)
Business Environment and Domain Knowledge (BEDK)	• *Understand* the fundamental elements of database and relational database management systems in particular • *Analyze* how to convert the ER-model to relational tables and normalize their structures.
Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI)	• *Analyze* the operations and use of databases management systems in organization.
Global Exposure and Cross-Cultural Understanding (GECCU)	• *Analyze* how to populate relational databases and formulate SQL queries to manage data.
Social Responsiveness and Ethics (SRE)	• *Illustrate* the impact of databases management systems in maintaining data integrity and security
Effective Communication (EC)	
Leadership and Teamwork (LT)	

LO – PO Mapping: Correlation Levels:

1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High), "-"= no correlation

Sub. Code: 4519206	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1: *Understand* the fundamental concepts of database and relational database management systems in particular.	-	3	2	1	1	1	2	-	2
LO2: *Analyze* how to convert the ER-model to relational tables and normalize their structures.	1	3	3	3	1	2	2	-	2
LO3: *Analyze* how to populate relational databases and formulate SQL queries to manage data.	1	3	3	2	2	2	1	-	2
LO4: *Illustrate* the impact of databases management systems in maintaining data integrity and security	3	3	3	1	-	2	1	-	2

2. Course Duration: The course duration is of **40 sessions of 60 minutes** each

3. Course Contents:

Module No.	Modules with its Contents/Chapters	No. of Sessions	Marks (out of 70)

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I	**Introduction to DBMS** Basic concepts: Data, Information, Data types Data Management: File-based Data Management, Disadvantages Database: Organization, of a Database, Characteristics of Data in a Database DBMS: Advantages, Functions Components of a DBMS: Data dictionary, Database Users Database Architecture: Data Abstraction, Logical and Physical data independence Database languages, Database Design, Database constraints	10	17
II	**Data Models and Concepts of E-R Modeling** Conceptual, Physical and Logical Database Models, Database relationships, Hierarchical model, Network Model, Relational Model **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	10	18
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	10	17
IV	**Structured Query Language (SQL)** Features of SQL, Data Definition Language (DDL), Data Manipulation Language (DML), Views, Functions in SQL, Rollback, Commit and Save point, Group By and Having Clauses, Subqueries, Examples of SQL	10	18
	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	-	Internal Evaluation of CEC (30 marks)

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	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		

4. **Pedagogy:**
    a. ICT enabled Classroom teaching
    b. Case study
    c. Practical / live assignment
    d. Interactive class room discussions

5. **Evaluation:**
    Students shall be evaluated on the following components:

	Internal Evaluation	**(Internal Assessment- 50 Marks)**
A	• Continuous Evaluation Component	30 marks
	• Class Presence & Participation	10 marks
	• Quiz	10 marks
B	**Mid-Semester examination**	**(Internal Assessment-30 Marks)**
C	**End –Semester Examination**	**(External Assessment-70 Marks)**

6. **Reference 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
3	Ramakrishnan, Gehrke	Database Management Systems	McGraw Hill	Latest Edition
4	Alexis Leon, Mathews Leon	Essentials of Database Management Systems	Tata McGraw Hill Publication	Latest Edition

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5	Elmasri and Navathe	Fundamentals of Database Systems	Pearson Education	Latest Edition
6	C. J. Date, A. Kannan, S. Swamynathan	An Introduction to Database Systems	Pearson Education	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. **List of Journals / Periodicals / Magazines / Newspapers / Web resources, etc.**
    1. Database trends and application (DBTA)
    2. Dataquest
    3. Computer Express
    4. Digichip
    5. PC World