



SARVAJANIK UNIVERSITY
Sarvajnik College of Engineering and Technology
Master of Computer Applications



Integrated MCA I Semester 2

Subject Name: Introduction to Relational Database Management System

Subject Code: IMCA13203

Type of course: Professional Core Course

Prerequisite (if any):

- Basic knowledge of working with computers.

List of Courses where this course will be prerequisite:

- Database related application.
- Web based dynamic application.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks		Practical Marks		Total
L	T	P	C	TEE	CAT	TEP	CAP	
3	0	0	3	60	40	-	-	100

CAT: Continuous Assessment Theory comprised of CA1 and CA2 **CA1:** Continuous Assessment (assignments/projects/open book tests/closed book tests **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CAP:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in courses.





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Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1.	Introduction to Database System a. Introduction to Data, Database, Database systems, File processing system Vs DBMS, Advantages and Disadvantages of DBMS, Users of DBMS: Database Designers, Application programmer, Sophisticated Users, End Users. b. Schemas, Instances, the three schema architectures and data independence, Classifications of Database Management Systems. c. Types of Relational Databases and Codd 12 Rules. d. Introduction to NoSQL Databases	08	18%
2.	Data Models a. Introduction to Data Models b. Data Models : Object Based Logical Model, Record Based Logical Model, Relational Model, Network Model, Hierarchical Model, Entity Relationship Model	05	10%
3.	Entity Relationship Model concepts a. Entity Set, Attribute, Relationship Set, Roles and Structural Constraints, Weak entity Types. b. Entity Relationship Diagram (ERD), extended features of ERD (Specialization and Generalization).	08	18%
4.	Relational Model concepts a. Relational data model concept, Terms: Relation, Tuple, Attribute, Domain, Keys: Super Key, Candidate Key, Primary Key, Foreign Key. b. Relational Algebra Operations: Select, Project, Union, Difference, Intersection, Cartesian product.	08	18%
5.	SQL (Part I) a. Introduction of SQL, characteristics of SQL, SQL Common Data Types. b. DDL Commands (CREATE, ALTER, DROP, TRUNCATE, RENAME). CREATE with CHECK constraints. c. DQL Command (SELECT), SELECT with WHERE, DISTINCT, GROUPBY, HAVING, ORDERBY clauses. d. DML Commands (INSERT, UPDATE, DELETE). e. DCL Commands (GRANT, REVOKE). f. TCL Commands (COMMIT, ROLLBACK, SAVEPOINT).	08	18%





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6.	SQL (Part II) a. Compound Conditions and Logical Operators (AND, OR, ALL, IN, NOT, BETWEEN, LIKE), Combining AND Operator and OR Operators. b. Handling NULL Values, Concatenation Operator, Alias Column. c. Apply Primary key and Foreign Key.	08	18%
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Suggested Specification table with Marks (Theory/Practical):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	10	15	15	20

Legends: R: Remembrance, **U:** Understanding; **A:** Application, **N:** Analyze, **E:** Evaluate **C:** Create and above Levels (**Revised Bloom’s Taxonomy**)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Text Books:

Sr. No.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	Fundamental of Database Systems	Ramez Elmasri, Shamkant B. Navathe	Pearson Education ISBN-10: 0-13- 397077-9 ISBN13: 978-0-13-397077-7	2016	7 th Edition
2	SQL, PL/SQL the Programming Language of Oracle	Ivan Bayross	BPB Publications ISBN 978817656964, 9788176569644	2009	4 th Edition
3	Database System Concepts	Abraham Silberschat, Henry F. Korth, S. Sudarshan	McGraw Hill Education ISBN-10: 9332901384, ISBN-13: 978-9332901384	2013	6 th Edition





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Course Outcome:

Sr. No.	CO Statement After learning this subject, students will be able to	Marks % weightage
CO-1	Understand the basics concepts of the database management system, database schema.	18%
CO-2	Understand the basics concepts of Data Model.	10%
CO-3	Understand the concept of Entity model and mapping of ER model to Relational Model.	18%
CO-4	Ability to analyze Relational Model concepts.	18%
CO-5	Ability to create database tables, populate the databases and formulate SQL queries on data.	18%
CO-6	Ability to apply different operators and formulate SQL queries.	18%

Mapping with POs:

	P O 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13
CO-1	3	3	0	0	0	0	3	0	0	0	0	3	0
CO-2	3	3	0	0	3	0	3	0	0	0	0	3	0
CO-3	3	3	0	0	0	0	3	0	0	0	0	3	0
CO-4	3	3	0	0	3	0	3	0	0	0	0	3	0
CO-5	3	3	0	0	3	0	3	0	0	0	0	3	0
CO-6	3	3	0	0	3	0	3	0	0	0	0	3	0
Rationale *													

Rationale*: Explaining why it is matching this particular program outcome

List of Open Source/learning website:

<https://docs.oracle.com/en/database/index.html>

<https://www.w3schools.com/sql/s>

