

AHMEDABAD UNIVERSITY

SCHOOL OF COMPUTER STUDIES

Master of Computer Applications (M.C.A.) - W.E.F. June, 2013

Second Year Integrated MCA

Semester-IV

9

12

Subject Code: MCA5_244 Subject Name: Advanced Database

Management System

Lectures per week (hours): 3

Practicals per week (hours) 2

Internal Evaluation 50 Marks

External Evaluation 50 Theory + 50 Practical Marks

Total Credits 4

Prerequisites: Basic concepts of Database Management System

Aim:

The course is aimed to develop the techniques and skills of database designing which can be applied in real time software development.

Objectives:

- (1) To understand the importance of database design.
- (2) To gain knowledge of basic and advanced concepts of relational database.
- (3) To develop skills of writing queries and basic programs in fourth generation language SQL by using a relational database management system named ORACLE.
- (4) To make students familiar with the advanced database concepts such as transaction processing, database recovery and security.

Learning Outcomes:

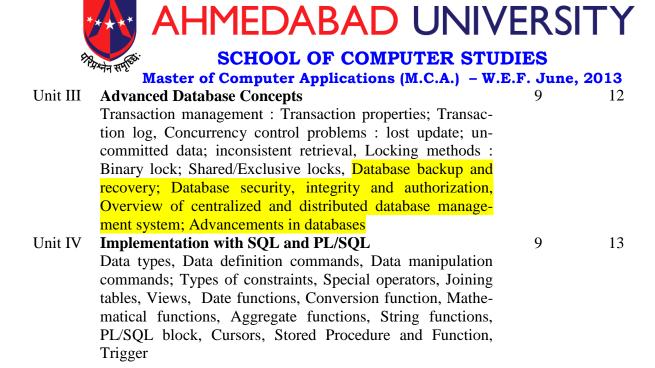
Unit I Design Concepts of the Relational Database Model

Introduction to RDBMS, Importance of database design, Problems with the file system data management, DBMS functions, Data models, 3-tier architecture of DBMS, Types of keys, Integrity rules; Relational set operators, Data dictionary

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Unit II E-R modeling and Normalization

Entity-Relationship modeling and its examples, The need for normalization, The normalization process: Conversion to First, Second and Third normal forms, Surrogate key considerations; Denormalization.



Learning Outcomes:

Total

Upon the completion of this course, the student will be able to:

1. Use the basic and advanced concepts of the database management system to design and create the database table structures of any real time application by applying concepts of entity-relationship and normalization efficiently.

50

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- 2. Solve any query by using the fourth generation language SQL and write small programs with Procedural SQL in the DBMS ORACLE.
- 3. Know the importance of transaction management and concurrency control during simultaneous execution of transactions.



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Practicals per week (hours)

Total Marks (Practical Exam) 50 Marks

Topics to be covered in Practical Sessions

2

Total Marks: 50

Sr. No.	Topics to be Covered	No. of Practicals
1.0	SQL	6
	1.1 Select queries	
	1.2 Advanced select queries	
	1.3 SQL functions	
	1.3.1 Date and time functions	
	1.3.2 String functions	
	1.3.3 Numeric functions	
	1.3.4 Conversion functions	
2.0	Advanced SQL	6
	2.1 Virtual table : View	
	2.2 Joining database tables	
	2.3 Relational set operators: Union, Intersect, Minus	
	2.4 Sub queries	
3.0	PL/SQL	12
	3.1 Creating Pl/SQL block	
	3.2 Working with Cursors	
	3.3 Stored procedure	
	3.4 Stored function	
	TD 4.1	24

Total 24

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Prescribed Reference Books:

- (1) Shefali Naik, "Concepts of Database Management System", Pearson Education, First Edition, 2014
- (2) Peter Rob and Carlos Coronel, "Database Systems: Design, Implementation and Management", Thomson Course Technology, Seventh Edition, 2007
- (3) S.K. Singh, "Database Systems: Concepts, Design and Applications", Pearson Education, Third Edition, 2009
- (4) Ivan Bayross, "SQL, PL/SQL: The Programming Language of ORACLE", BPB Publications, Fourth Edition, 2010

Additional Reference Books/Resources:

- (1) Ramez Elmasri and Sham Kent Navathe, "Fundamentals of Database Systems", Pearson Education, Fifth Edition, 2004
- (2) Atul Kahate, "Introduction to Database Management System", Pearson Education, Third Edition, 2009
- (3) Nilesh Shah, "Database Systems Using Oracle", PHI Pvt. Ltd., Second Edition, 2005