C. U. SHAH UNIVERSITY, WADHWAN CITY.

Faculty of: **Computer Science**
Course: **Bachelor of Computer Applications**
Semester**: II**
Subject Code**: CAM203-1C**
Subject Name: **DATABASE MANAGEMENT SYSTEM**

Sr. No	Category	Subject Code	Subject Name	Teaching hours/ Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								
									Theory				Practical				Total
									Continuous and Comprehensive Evaluation		End Semester Exams		Internal Assessment		End Semester Exams		
				Th	Tu	Pr			Marks	Marks	Marks	Duration	Marks	Duration	Marks	Duration	
1	MAJOR–III	CAM203-1C	DATABASE MANAGEMENT SYSTEM	3	--	2	5	4	10 10 05	Assignment MCQ Attendance	50	2	25	1	-	-	100

AIM: The aim of this subject is to make student how to use these concepts in database applications. The students would be able to decide where and how to store and retrieve the information effectively using advanced concept of database, recognize the elements of Database for real life applications and familiar with the advanced database concepts such as distributed database.

COURSE CONTENTS

Unit -1 : Introduction to Database **(06 Lectures)**

[a] Introduction to Database Systems. RDBMS

[c] Dr. E. F. Codd's Rules

[d] Normalization and Types of Normalization.

[e] E-R Modeling Concept and Diagrams.

Unit -2 : SQL **(15 Lectures)**

[a] Data types of SQL

[b] Data Definition commands with constraints

[c] Advanced data definition commands

- Changing Column's Data Type
- Changing Column's Data Characteristics
- Adding a new column, Dropping an existing column

[d] Data manipulation commands with adding, deleting, updating rows/content in tables

[e] Select Statement with WHERE, DISTINCT, ORDER BY, GROUP by, HAVING clause

[f] Constraint – primary key, not null, check, unique, referential integrity

[g] Arithmetic operators, Logical operators, Special Operators – IN, NOT IN, ANY, BETWEEN, ALL, LIKE, EXISTS

Unit -3 : Joins and Sub queries **(12 Lectures)**

[a] Aggregate Functions (sum, average, count, min, max)

[b] String handling functions (chr, concat, initcap, lower, lpad, ltrim, replace, substr)

[c] Set Operators (Union, Union all, intersect, minus)
[d] Introduction and types of Joins

- Natural Join or Equi Join
- Outer Join
- Right Outer Join, Left Outer Join, Full Outer Join, Self-Join, Cross Join

[e] Introduction to Sub queries.

- Single Row Sub queries ,
- Multiple Value Sub queries
- Multiple Column Sub queries, Multiple Row Sub queries

[f] Transaction Control Language Commands.
[g] Creating users, Data Control Language Commands.

Unit -4 : OLTP Environment **(06 Lectures)**

[a] OLTP Environments.
[b] Concurrency issues.
[c] Need for transactions and necessary properties for transactions (ACID)
[d] Transaction states
[e] Concurrency states, Concurrency control ((Serialized and non-serialized schedules)

Unit -5 : DDBMS **(06 Lectures)**

[a] Introduction and evolution of DDBMS.
[b] Distributed Processing and Distributed Database
[c] DDBMS Advantages and Disadvantages.
[d] Characteristics of DDBMS, Components of DDBMS

Arrangement of lectures duration and practical session as per defined credit numbers:

Units	Lecture Duration (In Hrs.)		Calculation of Credits (In Numbers)		Total Lecture Duration	Credit Calculation
	Theory	Practical	Theory	Practical	Theory + Practical	Theory + Practical
Unit -1	06	02	3	1	08	4
Unit -2	15	15			30	
Unit -3	12	13			25	
Unit -4	06	00			06	
Unit -5	06	00			06	
Total	**45**	**30**	**3**	**1**	**75**	**4**

Evaluation:

Theory Marks	Practical Marks	Total Marks
75	**25**	**100**

REFERENCE BOOKS:

- RDBMS Using Oracle – Bharat & Co. [ISBN No. : 978-93-81786-38-3]
- SQL, PL/SQL The programming - Lang.Of Oracle Ivan Bayross - BPB [ISBN No. : 81-7656-964-X]

NPTEL COURSE (https://nptel.ac.in/):

Fundamentals of Database Systems by Dr. Arnab Bhattacharya
Course Link: https://nptel.ac.in/courses/106104135