C.U.SHAH UNIVERSITY – WADHWANCITY

FACULTY OF: - Diploma Studies
DEPARTMENT OF: - Computer Engineering
SEMESTER: - V   **CODE**: - 2TE05ADM1
NAME: - Advanced Database Management System

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Evaluation Scheme							Total
						Theory				Practical (Marks)			
		Th	Tu	Pr	Total	Sessional Exam		University Exam		Internal		University	
						Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
2TE05ADM1	Advanced Database Management System	03	00	02	05	30	1.5	70	03	-----	20	30	150

Objectives:-

This subject is associated with the designing of database for business, scientific and engineering application. By the end of this course the students will be able to write simple and advanced PL/SQL code blocks, use advanced features such as ref cursors and bulk fetches and database designing with normalization.

Prerequisites: -Basic knowledge of Database Concepts, Models, Oracle and Queries.

Course Outlines:-

Sr. No.	Course Contents	Hours
1.	**Advanced SQL** TCL(Commit, Save point, Rollback),DCL Commands(Grant and Revoke), Lock and its types(Row level locks, Table level locks, Shared lock, Exclusive lock, Deadlock), Synonym, Create synonym, Sequences(Create and alter sequences), Index(Unique and composite), Views(Create/Replace, Update and alter views).	10
2	**PL / SQL and Triggers** Basics of PL / SQL, Data types, Advantages, Control Structures(Conditional, Iterative, Sequential), Exceptions(Predefined Exceptions ,User defined exceptions), Cursors: Static (Implicit & Explicit), Dynamic, Procedures & Functions, Packages : Package specification, Package body, Advantages of package, Fundamentals of Database Triggers, Creating Triggers, Types of Triggers : Before, after for each row, for each statement.	10

3	**Functional Dependency and Decomposition** Basics of Functional Dependency, Functional dependency diagram and examples, Full function dependency (FFD), Armstrong's Axioms for functional dependencies, Redundant functional dependencies, Closures of a set of functional dependencies, Lossy Decomposition, Lossless join decomposition, Dependency-Preserving Decomposition.	**08**
4	**Normalization** Basics of Normalization, Normal Forms (First Normal Form (1NF), Second Normal Form (2NF), Third Normal Form (3NF)).	**06**
5	**Transaction Processing** Introduction to transaction concepts, Concurrency, Methods for Concurrency control Locking Methods, Timestamp methods, Optimistic methods.	**08**

List of Experiments:

- To create users & grant and revoke privileges.
- To implement the concept of Synonym and Sequence.
- To implement the concept of Views.
- To implement the concept of Indexes.
- To implement the basic control Structures of PL/SQL.
- To implement the basic control structures of PL/SQL with table data.
- To implement the concept of exceptions.
- To implement the concept of cursor.
- To implement the concept of Triggers.
- To implement the concept of procedures and functions.
- To study Normalization.

Learning Outcomes:-

The syllabus topic should be taught and implemented with aim to develop the skills of different type as under:

- Execute various advance SQL queries related to Transaction Processing
- Demonstrate use of Database Object.
- Perform PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers.
- Understand Functional Dependency and Functional Decomposition.
- Apply various Normalization techniques.

Books Recommended:-

- Database System Concepts, **By - Abraham Silberschatz, Henry F. Korth& S. Sudarshan** McGraw Hill (MGH).
- SQL,PL/SQL-The Programming Language Of Oracle, **-By Ivan Bayross**, BPB Publications
- An Introduction to Database Systems, - **By C.J. Date, Addison Wesley**
- Database Systems Concepts, design and Applications,**-By S. K. Singh** Pearson Education
- ORACLE complete reference, ORACLE PRESS, TMH.

E- Reference:-

- Software: Oracle 10e/11g express edition
- DBMS:http://nptel.iitm.ac.in/video.php?subjectId=106106093
- SQL Plus Tutorial: http://holowczak.com/oracle-sqlplus-tutorial/
- DatabaseTutorials:http://www.roseindia.net/programming-tutorial/Database- Tutorials
- Notes : http://service.felk.cvut.cz/courses/X36SQL//cviceni/plsql/pdf/
- SQL Basic Concepts: http://www.w3schools.com/sql/
- SQL Tutorial : http://beginner-sql-tutorial.com/sql.htm