GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc.), 4th Semester
Branch: Information Technology
Subject Name: Advanced Database Management System
Subject Code: 1140501

Type of subject: Core
Prerequisite: Basic of Database Management System.

Rationale: This subject provides basic and advanced knowledge about how databases manage the works for the real time applications. It is used for managing data into a particular format structure and why of the manipulations of the data and metadata.

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Course Details:

Sr. No.	Content	Total Hrs.	Module % Weightage
1	**Unit – 1 Advanced SQL** 1.1 Transactional Control: Commit, Save point, Rollback 1.2 DML, DQL, DCL Commands Grant and Revoke 1.3 **Types of locks:** 1.3.1 Row level locks 1.3.2 Table level locks 1.3.3 Shared lock 1.3.4 Exclusive lock 1.3.5 Deadlock 1.4 Synonym: Create synonym 1.5 Sequences: Create and alter sequences 1.6 Index: Unique and composite 1.7 Views: Create/Replace, Update, and alter views	**10**	**25**
2	**Unit – 2 PL /SQL and Triggers** 2.1 Basics of PL / SQL 2.2 Data Types 2.3 Advantages 2.4 Control Structures: Conditional, Iterative, Sequential 2.5 Exceptions: Predefined Exceptions, User defined exceptions 2.6 Cursors: Static (Implicit & Explicit), Dynamic 2.7 Procedures & Functions 2.8 Packages: Package specification, Package body, Advantages of package	**10**	**25**

	2.9 Fundamentals of Database Triggers 2.10 Creating Triggers 2.11 Types of Triggers: Before, after for each row, for each statement		
3	**Unit – 3 Functional Dependency and Decomposition** 3.1 Basics of Functional Dependency 3.2 Functional dependency diagram and examples 3.3 Full function dependency (FFD) 3.4 Armstrong's Axioms for functional dependencies 3.5 Redundant functional dependencies 3.6 Closures of a set of functional dependencies 3.7 Lossy Decomposition 3.8 Lossless join decomposition 3.9 Dependency-Preserving Decomposition	**8**	**20**
4	**Unit – 4 Normalization** 4.1 Basics of Normalization 4.2 **Normal Forms:** 4.2.1 First Normal Form (1NF) 4.2.2 Second Normal Form (2NF) 4.2.3 Third Normal Form (3NF)	**8**	**20**
5	**Unit – 5 Transaction Processing** 5.1 Introduction to transaction concepts 5.2 Concurrency 5.3 Methods for Concurrency control • Locking Methods • Timestamp methods • Optimistic methods	**6**	**10**
	TOTAL	42	100

Reference Books:

1. Database Systems Concepts, design and Applications Singh, S. K. Pearson Education, New Delhi, 2012.
2. Sql/ Pl/SQL Bayross, Ivan BPB
3. An Introduction to Database Systems Date, C. J. Pearson Education, New Delhi, 2012
4. Database System Concepts, Korth, Henry MGH

Suggested Specification Table with Marks (Theory): (For B.VOC. Only)

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
10	20	20	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)

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Course Outcomes:

Sr.No.	Co statements:	Marks % Weightage
CO 1	Understanding Types and locks used for database systems.	**25**
CO 2	Explore PL/SQL and its parameters, functions and how to use it in the real world.	**25**
CO 3	Use of functional dependency and decomposition and problem solving with use of it.	**20**
CO 4	Use of normalization and different types of forms.	**20**
CO 5	Perform Transaction processing with its concepts and methods	**10**
	TOTAL	**100**

Laboratory Work: NA

Learning Resources:

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