MCA 1st Semester

Course: 101: Relational Database Management System

Course Code	**101**
Course Title	**Relational Database Management System**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Review / Revision	June 2020
Purpose of Course	Give fundamental knowledge of Database Fundamentals like Keys & Normalisation, Oracle Database Server Architecture and Working knowledge of SQL & PL/SQL in Oracle.
Course Objective	To acquaint the students with Database Fundamentals like Keys & Normalisation in general and Oracle Architecture in particular. Also, to get working knowledge of SQL and PL/SQL programming
Course Outcome	CO1: Students will be able to understand and evaluate the role of database management systems in IT applications within an organization. CO2: Students will be able to normalise any real-life database and hence they will be able to design and implement properly structured databases of real-world applications. CO3: Students will be able to write queries using Structured Query Language (SQL) and programs using PL/SQL. CO4: Students will understand how Oracle Database works and the importance of various components of Oracle Database. CO5: Students will understand administration and security enforcement of Oracle Database. This will help them in pursuing higher studies and career in Database Administration.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■		■		■	
CO2	■		■			■	■	
CO3	■		■	■		■	■	
CO4			■	■	■	■	■	■
CO5		■	■	■	■	■	■	■

Pre-requisite	Nil

Course Content	**Unit 1: Database Computing Models**
	1.1. Notion of Keys (Super Key, Candidate Key, Primary Key, Foreign Key)
	1.2. Referential Integrity Constraint
	1.3. Functional Dependencies
	1.4. Normalization using Functional Dependencies
	1.5. Normalization using Multivalued Dependencies
	1.6. Normalization using Join Dependencies
	
	Unit 2: Overview of Oracle Database Server Architecture
	2.1. Architecture of Oracle Database and Oracle Instance
	2.2. Overview of Physical and Logical Structures
	2.3. Oracle Server Start-up and Shutdown
	2.4. Creating Database
	
	Unit 3: Oracle Tools and Utilities
	3.1. SQL
	3.2. Pl/SQL Procedural Extension.
	    3.2.1. Overview, PL/SQL data types & Control Structures
	    3.2.2. Cursors
	    3.2.3. Stored Procedures & Functions
	    3.2.4. Database Triggers
	    3.2.5. Package Creation

	Unit 4: Database Administration
	4.1. Managing Users
	  4.1.1. User Authentication Methods
	    4.1.1.1. Password Authentication
	    4.1.1.2. O.S Authentication
	  4.1.2. User Configuration Setup
	    4.1.2.1. Profiles
	    4.1.2.2. Default Table space
	    4.1.2.3. Temporary Table space
	  4.1.3. Resource Management
	    4.1.3.1. Quotas
	  4.1.4. Working with user database account
	    4.1.4.1. Creating, Modifying and deleting user account
	    4.1.4.2. Changing password
	4.2. Backup & Recovery
	
	Unit 5: Database Security
	5.1. Authentication
	5.2. Privileged Accounts & Privileges
	5.3. Object Security
	5.4. System security
	5.5. Database Roles
	5.6. Database Auditing
	
	[Self-Study]
	Export & Import Tools, Overview of Grid Based Database
	 **Computing, Calling External Routines from PL/SQL

Reference Books	1. Oracle 9i PL/SQL Programming -Scott Urman- Oracle Press 2. Oracle DBA Fundamentals-I - Oracle Press 3. Effective PL/SQL: - Apress 4. Expert Oracle Database Architecture 9i and 10g-Tom Kyte- Apress 5. Effective Oracle by Design - Peter Norton - Tom Kyte-Oracle Press 6. Oracle 24 X 7 Tips and Techniques - Venkat Devraj–Oracle Press 7. Expert Oracle Database 11g Administration – Alpati- Wiley Student Edition 8. Fundamentals of Database Management System- Gilleneon-Wiley Student Edition 9. SQL & PL/SQL for Oracle 11g Black Book - Deshpande-McGraw Hill 10. Beginning Oracle Database 11g Administration from novice to professional-Iggy Fernandez - Apress/Springer 11. Oracle PL/SQL-Benjamin Rosenweig & Elena Silvestrova-4/e, Pearson 12. Database Systems Using Oracle: A simplified guide to SQL & PL/SQL-Shah Nilesh- PHI 13. Learning Oracle SQL & PL/SQL: A Simplified Guide- Chatterjee, Rajeeb C- PHI
Teaching Methodology	Class Work, Discussion, Self Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment 70% External Assessment