DEPARTMENT OF CSE - DATA SCIENCE

Programme: CSE-DS					Semester: III
Course Code	Course Name	L	T	P	C
20CS3L04	**DATABASE MANAGEMENT SYSTEMS LAB**	0	0	3	1.5
Subject Category :	**ESC LAB**				

Course Objectives:

This Course will enable students to
- Populate and query a database using SQL DDL/DML Commands
- Declare and enforce integrity constraints on a database
- Writing Queries using advanced concepts of SQL
- Programming PL/SQL including procedures, functions, cursors and triggers

Course Outcomes:

At the end of the course the student will be able to:

CO1 :Utilize SQL to execute queries for creating database and performing data manipulation
Operations.

CO2 :Examine integrity constraints to build efficient databases

CO3 :Apply Queries using Advanced Concepts of SQL

CO4 :Build PL/SQL programs including stored procedures, functions, cursors and triggers

List of Exercises:

1. Creation, altering and droping of tables and inserting rows into a table (use constraints while creatingtables) examples using SELECT command.
2. Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints. Example:- Select the roll number and name of the student who secured fourth rank in the class.
3. Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
4. Queries using Conversion functions (to_char, to_number and to_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next_day, add_months, last_day, months_between, least, greatest, trunc, round, to_char, to_date)
5.
    i. Create a simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printedfor those who secured first class and an exception can be raised if no records were found)
    ii. Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
6. Develop a program that includes the features NESTED IF, CASE and CASE expression.The program can be extended using the NULLIF and COALESCE functions.
7. Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERRORHandling, BUILT –IN Exceptions, USE defined Exceptions,
   RAISE- APPLICATION ERROR.

8. Programs development using creation of procedures, passing parameters IN And OUTof PROCEDURES.
9. Program development using creation of stored functions, invoke functions in SQL Statements andwrite complex functions.
10. Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERECURRENT of clause and CURSOR variables.
11. Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggersand INSTEAD OF Triggers
12. Create a table and perform the search operation on table using indexing and non-indexing techniques.

Text Books/Suggested Reading:
1) Oracle: The Complete Reference by Oracle Press
2) Nilesh Shah, "Database Systems Using Oracle", PHI, 2007
3) Rick F Vander Lans, "Introduction to SQL", Fourth Edition, Pearson Education, 2007