**17CS22P1 - DATABASE MANAGEMENT SYSTEMS LABORATORY**

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| **Course Category:** | Core | **Credits:** | 2 |
| **Course Type:** | Practical | **Lecture – Tutorial – Practical:** | 0-0-3 |
| **Prerequisite:** | Basic knowledge in mathematical formulae and preliminary fundamentals of databases. | **Sessional Evaluation:****Univ. Exam Evaluation:****Total Marks:** | 4060100 |
| **Objectives** | * To study various database design models for building applications.
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| **Course Outcomes** | At the end of this lab session, the students will be able to identify various Database concepts to develop applications using SQL |
| **Course Content** | 1. Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
2. Queries along with sub Queries using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSECT Constraints.
3. Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN) GROUP BY, HAVING,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. Implement the following
6. Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found).
7. Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
8. Develop a program that includes the features NESTED IF, CASE and CASE expression.
9. Develop a program using WHILE LOOP, numeric FOR LOOPS, nested loops using BUILT–IN Exceptions
10. Develop a program using creation of procedures, passing parameters IN and OUT of procedures.
11. Develop a program using creation of stored functions, invoke functions in SQL Statements and write complex functions.
12. Develop programs using feature parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
13. Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers.
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| **Text Books and References:** | **Reference Books:**1. ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc- Graw Hill.
2. Oracle Database 12C Hands-on SQL and PL/SQL Paperback – Import, 29 Feb 2016 by [Satish Asnani](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Satish+Asnani&search-alias=stripbooks).
3. Oracle Pl/Sql Programming:A Developer's Workbook,  [Steven Feuerstein](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Steven+Feuerstein&search-alias=stripbooks) , [Andrew Odewahn](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_2?ie=UTF8&field-author=Andrew+Odewahn&search-alias=stripbooks)**.**
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| **E-Resources** | 1. [**https://nptel.ac.in/courses**](https://nptel.ac.in/courses)
2. [**https://freevideolectures.com/university/iitm**](https://freevideolectures.com/university/iitm)
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