CS – 16
RDBMS Using ORACLE (10 G)

Unit : 1
DBMS Overview, SQL & SQL *Plus

- Introduction to DBMS
- Introduction to RDBMS
- Dr. E. F. Codd Rules
- Instruction of E.R. Diagram
- Importance of E.R. Diagram in Relational DBMS.
- Relations between Entities
- Normalization
- Introduction to SQL
- SQL Commands and Datatypes
- Introduction to SQL*Plus
- Operator and their types
- Expression
- SQL v/s SQL*Plus

Unit : 2
Managing Tables and Data, Data Control and Transaction Control Command

- Creating, Altering & Dropping tables
- Data Manipulation Command like Insert, update, delete etc…
- Integrity Constraints, their type and applying of constraints
- SELECT statement with WHERE, GROUP BY and HAVING, ROLLUP AND CUBE, ORDER BY, DISTINCT, Special operator like IN, ANY, ALL, BETWEEN, EXISTS, LIKE
- Join (Inner join, outer join, self-join)
- subquery, minus, intersect, union

Built in functions

- **Numeric Function**
  abs, ceil, exp, floor, greatest, least, log, max, min, rem, round , sign, sqrt
- **Character Function**
  chr, concat, initcap, lower, upper, lpad, rpad, ltrim, rtrim, trim, replace, substr, treat
- **Date Function**
  add_months, last_day, months_between, next_day, round (date), sysdate, systimestamp, trunc (date), to_date, to_char
- **Aggregate function**
  Sum, Count, Avg, Max, Min
- **General Functions**
  Coalesce, Case, When, Decode
- Creating user & role
- Grant, Revoke command
- What is transaction?

- Starting and Ending of Transaction
- Commit, Rollback, Save Point

Unit : 3
Other ORACLE Database Objects, Concurrency control using lock

- View and their types
- Sequence
- Synonyms
- Database Links
- Index & their types (simple index, composite index, unique index, bitmap, function base index, B-tree index)
- Cluster
- Snapshot
- Types of Files (Date file, Redo log file, Control File, Archive File)
- What Are Locks? Types of Locks (shared lock, exclusive lock, DML lock, DDL lock, latch)
- Levels of Locks (Row level, Page level, Table level)
- Lost Updates
- Deadlocks
- Blocking

Unit : 4
Introduction to PL/SQL, Advanced PL/SQL

- SQL v/s PL/SQL
- PL/SQL Block Structure
- Language construct of PL/SQL
  (Variables, Basic and Composite Data type, Conditions looping etc.)
- %TYPE and %ROWTYPE
- Cursor, their types (Implicit, Explicit), steps, Attributes
- Exception Handling
- Creating and Using Procedure and Functions
- Package
- Triggers, parts of trigger and types of trigger
- Tables, Nested Tables, Varrays
- Creating Objects and use of this object

Unit : 5
Oracle Database Structure and Storage Database, Resource Management

- Instance Architecture (Database Processes, Memory Structure)
- Creating & Altering Database
- Opening & shutdown Database
- Data dictionary
- Control Files, Redo Logs files

- Tablespace (Create, Alter, Drop), types of tablesplace (system, read only, temporary, tool, user, data and index, rollback)
- Rollback Segment (Create, Alter) (System & Transaction RBS)
- Oracle Blocks
- Import
- Export
- SQL*Loader
- Oracle Scheduler Concepts
- Managing Resources with Oracle Database Resource Manager

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	**60**	**05**	**05**	**05**	**75**

Reference Books :

1) Oracle Database 12c The Complete Reference (Oracle Press)by Bob Bryla , Kevin Loney –Oracle Press
2) Oracle Database 12c SQL –Jason Price –Oracle Press
3) Oracle Database 12c PL/SQL Programmingby McLaughlin–Oracle Press
4) QL,PL/SQL The programming -Lang.Of Oracle Ivan Bayross -BPB

Web site References:

- https://www.tutorialspoint.com/sql/index.htm
- https://www.tutorialspoint.com/plsql/index.htm
- https://www.oreilly.com/library/view/oracle-sqlplus-the/0596007469/ch01s01.html
- https://docs.oracle.com/cd/B19306_01/server.102/b14357/qstart.htm
- http://www.sql-plus.com/differences-between-sql-plus-and-sql.php
- http://www.oracle.com/us/corporate/features/database-12c/index.html