

Oracle Database Administration (Version 21c)

No of Modules – 3

Module 1 Duration - 24 Hours (8 Classes)

Module 2 Duration - 40 Hours (13 Classes)

Module 3 Duration - 42 Hours (14 Classes)

Total Duration – 106 hours

Module 1 Oracle RDBMS & Structured Query Language (SQL)

Class 1 – Introduction to Database Management System (DBMS)

1. Introduction to Database
2. Types of Databases
3. Overview of Oracle Database
4. Features of Oracle Database 21c

Class 2 – Table Structure of Oracle RDBMS

1. Introduction to table and table structure
2. Introduction to Keys
3. Usage of Indexing
4. Usage of views
5. Details on DDL, DQL, DML, DCL, TCL

Class 3 - Structured Query Language (SQL) – I

1. Introduction to SQL
2. Querying, Sorting and Filtering Data
3. Usage of SELECT statement
4. Usage of WHERE Clause
5. Usage of ORDER BY

Class 4 - Structured Query Language (SQL) - II

1. Usage of Single Row Functions
2. Usage of General functions
3. Usage of Case Conversion functions

Class 5 - Structured Query Language (SQL) – III

1. Usage of Character functions
2. Usage of Date functions
3. Usage of Number functions

Class 6 - Structured Query Language (SQL) – IV

1. Usage of GROUP BY clause
2. Usage of HAVING clause
3. Usage of Aggregate Functions

Class 7 - Structured Query Language (SQL) - V

1. Quiz - 1
2. Nested SQL Query / Subquery
3. Retrieving and Manipulating Data using Subqueries
4. Writing Queries with Subqueries

Class 8 - Structured Query Language (SQL) - IV

1. Introduction to SQL JOIN
2. Different types of JOIN
3. Writing Queries with JOIN
4. Quiz - 2

Module 2

Basic Oracle Database Administration

Class 9 - Oracle Database Installation (Non-CDB)

1. Preparing Environment for Oracle Database Installation
2. Single Instance Oracle Database Installation (Detail of each steps)
3. Hands on Installation practice (Non-CDB)

Class 10 - Usage of Database Management Tools

1. Usage of SQL*Plus
2. Usage of RMAN
3. Usage of third-party database management tools (SQL Developer and Toad)
4. Usage of Oracle Enterprise manager and Oracle Enterprise manager cloud control (OEM 13c)

Class 11 – Managing Oracle Database Instance

1. Steps in Database Startup
2. Steps in Database Shutdown
3. Role of pfile and spfile
4. Role of Password file
5. Hands on instance management practice
6. Usage of Dictionary Views

Class 12 - Oracle Database Memory Architecture

1. Database Memory Architecture
2. Overview of SGA and PGA
3. Detail of SGA Components (database buffer cache, log buffer cache, Shared Pool, Large Pool, Java Pool, Streams pool etc)
4. Setting / Altering Memory components (Hands on practice)
5. Monitoring Memory Components (Hands on practice)

Class 13 - Oracle Database Process Architecture

1. Database Process Architecture
2. Detail of Database Writer, Log writer, Archiver Process, System Monitor, Process Monitor, Recoverer Process etc
3. Monitoring different DB Process

Class 14 - Oracle Database Network Architecture

1. Overview of Network Architecture
2. Configuring Listener (Hands on practice)
3. Configuring TNS (Hands on practice)
4. Configuring SQL Net (Hands on practice)
5. Creating Database Links (Hands on practice)

Class 15 - Oracle Database Multitenant Architecture

1. Overview of Multitenant Architecture
2. Overview of Container Database (CDB)
3. Overview of Pluggable Database (PDB)
4. Comparison of Legacy and Multitenant Architecture

Class 16 - Oracle Database Installation (with CDB-PDB)

1. Single Instance Oracle Database Installation with CDB-PDB architecture (Detail of each steps)
2. Hands on Installation practice

Class 17 - Managing Database Storage Structures

1. Physical vs. Logical storage structure
2. Managing Control File
3. Creating Redo Log Groups and Members (Hands on practice)
4. Relocating and Renaming Redo Log Members (Hands on practice)
5. Dropping Redo Log Groups and Members (Hands on practice)

Class 18 - Managing Archive logs

1. Concept of Archived logs
2. Choosing Between NOARCHIVELOG and ARCHIVELOG Mode
3. Monitoring and administering Archive Logs (hands on practice)
4. Basic Concept of Dataguard (how it works – theoretical and Q/A)

Class 19 - Managing Database Users (Schema)

1. Creating and altering Tablespaces (Hands on Practice)
2. Adding and dropping Datafiles (Hands on practice)
3. Managing the SYSTEM, SYSAUX, UNDO and Temp Tablespaces (Hands on)
4. Creating Users (Schemas)
5. Roles, Privileges, Profiles and Quotas

Class 20 - Managing Database Security

1. Understanding Audit implementation in Oracle
2. Enabling and configuring Standard Auditing (hands on practice)
3. Archiving and Purging the Audit Trail (hands on practice)

Class 21 - Basic Database Maintenance and Housekeeping

1. Alert Log File Analysis
2. Using My Oracle Support
3. Database Health Checkup
4. Database Housekeeping

Module - 3

Advanced Database Administration

Class 22 - Oracle Real Application Cluster Basics (Theoretical with Q/A)

1. Introduction to Oracle RAC
2. How Oracle RAC works
3. Concept of PUBLIC, PRIVATE, VIRTUAL and SCAN IP
4. Concept of Shared Storage
5. Concept of OCR and OLR

Class 23 - Oracle Automatic Storage Management

1. Introduction to ASM
2. ASM Instance
3. Disk Group and Disks
4. Setup and Configure oracleasm
5. Usage of ASMCA

Class 24 - Oracle Database Installation (using ASM)

1. Single Instance Oracle Database Installation with ASM
2. Hands on Installation practice

Class 25 - Introduction to Database Backup and Recovery

1. Different types of backups
2. Concept of export / import in Oracle

3. Concept of expdp /impdp in Oracle
4. Concept of RMAN backup in Oracle
5. Various modes of recovery options in Oracle

Class 26 - Perform DUMP backups

1. Configuring environment for export / import
2. Perform export / import
3. Configuring environment for expdp / impdp
4. Perform expdp / impdp

Class 27 - Backup and Recovery: Configuration

1. Configuring for Recoverability Using RMAN
2. Configuring Backup Settings Using RMAN
3. Multiplexing Control File and Redo Log
4. Configuring ARCHIVELOG Mode
5. Archiving Redo Log Files

Class 28 - Performing RMAN Backup

1. Performing Database Backup with Rman
2. Performing Archivelog Backup with Rman
3. Configuring Autobackup
4. Managing Rman Backups

Class 29 - Tuning and Troubleshooting RMAN Backups

1. Basic Concepts of RMAN Performance Tuning
2. Using V\$ Views to Diagnose RMAN Performance Problems
3. Tuning RMAN Backup Performance
4. Interpreting RMAN Message Output
5. Using V\$ Views for RMAN Troubleshooting
6. Terminating an RMAN Command

Class 30 - Database Recovery

1. Perform database restore activity
2. Perform database recovery activity

Class 31 - Recovery Scenarios

1. Recovering After the Loss of Control Files
2. Recovering After the Loss of Online Redo Log Files
3. Recovering After the Loss of Data Files in NOARCHIVELOG Mode
4. Recovering After the Loss of Non-Critical Data Files in ARCHIVELOG Mode
5. Recovering After the Loss of System-Critical Data Files in ARCHIVELOG Mode

Class 32 - Using Flashback Database and Restore Points

1. Flashback Database, Restore Points and Guaranteed Restore Points
2. Prerequisites for Flashback Database and Restore Points
3. Using Normal and Guaranteed Restore Points
4. Rewinding a Table with Flashback Table
5. Rewinding a DROP TABLE Operation with Flashback Drop
6. Rewinding a Database with Flashback Database

Class 33 – Database performance Tuning - I

1. Gather different level of statistics on database
2. Generating AWR, ADDM, ASH reports
3. AWR, ADDM, ASH report analysis

Class 34 – Database performance Tuning – II

1. Creating Index on Tables
2. SQL Tuning
3. Tuning Memory
4. Tuning parameters

Class 35 - Database Patching

1. Configuring Opatch
2. Getting Patches from MOS
3. Conventional Patching
4. Online Patching
5. Applying a Patch Release

