

## Oracle Database 11g: Administration Workshop I (48 hrs.)

This course is designed to give students a firm foundation in basic administration of Oracle Database 11g. In this class, students learn how to install and maintain Oracle Database 11g. Students gain a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Students learn how to create an operational database and properly manage the various structures in an effective and efficient manner including performance monitoring, database security, user management, and backup/recovery techniques. The lesson topics are reinforced with structured hands-on practices.

**Prerequisites:** Oracle Database 11g: SQL Fundamental

**Suggested Prerequisites:** Oracle PL/SQL course or equivalent experience

### Course Topics:

#### Exploring the Oracle Database Architecture

- Oracle Database Architecture Overview
- Process Architecture
- Memory structures
- Logical and physical storage structures

#### Installing your Oracle Software

- Tasks of an Oracle Database Administrator
- Tools Used to Administer an Oracle Database
- Installation: System Requirements
- Oracle Universal Installer (OUI)
- Installing Oracle Database Software
- Silent Install

#### Creating an Oracle Database

- Planning the Database
- Using the DBCA to Create a Database
- Password Management
- Creating a Database Design Template
- Using the DBCA to Delete a Database

#### Managing the Oracle Database Instance

- Start and stop the Oracle database and components
- Use Oracle Enterprise Manager
- Access a database with SQLPlus
- Modify database installation parameters
- Describe the stages of database startup
- Describe database shutdown options
- View the alert log
- Access dynamic performance views

#### Configuring the Oracle Network Environment

- Use Enterprise Manager to create and configure the Listener
- Enable Oracle Restart to monitor the listener
- Use tnsping to test Oracle Net connectivity
- Identify when to use shared servers and when to use dedicated servers

### **Managing Database Storage Structures**

- Storage Structures
- How Table Data Is Stored
- Anatomy of a Database Block
- Space Management in Tablespaces
- Tablespaces in the Preconfigured Database
- Actions with Tablespaces
- Oracle Managed Files (OMF)

### **Administering User Security**

- Database User Accounts
- Predefined Administrative Accounts
- Benefits of Roles
- Predefined Roles
- Implementing Profiles

### **Managing Data Concurrency**

- Data Concurrency
- Enqueue Mechanism
- Resolving Lock Conflicts
- Deadlocks

### **Managing Undo Data**

- Data Manipulation
- Transactions and Undo Data
- Undo Data Versus Redo Data
- Configuring Undo Retention

### **Implementing Oracle Database Auditing**

- Describe DBA responsibilities for security
- Enable standard database auditing
- Specify audit options
- Review audit information
- Maintain the audit trail

### **Database Maintenance**

- Manage optimizer statistics
- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe and use the advisory framework
- Set alert thresholds
- Use server-generated alerts
- Use automated tasks

### **Performance Management**

- Performance Monitoring
- Managing Memory Components
- Enabling Automatic Memory Management (AMM)
- Automatic Shared Memory Advisor
- Using Memory Advisors

- Dynamic Performance Statistics
- Troubleshooting and Tuning Views
- Invalid and Unusable Objects

### **Backup and Recovery Concepts**

- Part of Your Job
- Statement Failure
- User Error
- Understanding Instance Recovery
- Phases of Instance Recovery
- Using the MTTR Advisor
- Media Failure
- Archive Log Files

### **Performing Database Backups**

- Backup Solutions: Overview
- Oracle Secure Backup
- User-Managed Backup
- Terminology
- Recovery Manager (RMAN)
- Configuring Backup Settings
- Backing Up the Control File to a Trace File
- Monitoring the Flash Recovery Area

### **Performing Database Recovery**

- Opening a Database
- Data Recovery Advisor
- Loss of a Control File
- Loss of a Redo Log File
- Data Recovery Advisor
- Data Failures
- Listing Data Failures
- Data Recovery Advisor Views

### **Moving Data**

- Describe ways to move data
- Create and use directory objects
- Use SQL\*Loader to move data
- Use external tables to move data
- General architecture of Oracle Data Pump
- Use Data Pump export and import to move data

### **Working with Support**

- Use the Enterprise Manager Support Workbench
- Work with Oracle Support
- Log service requests (SR)
- Manage patches