Oracle Cloud Database Service Professional Workshop (2025) LVC

Data Management

DURATION	MODULES	COURSE CODE
2 Days	**18 Lectures**	**—**

Course Overview

This course equips database professionals, DevOps engineers, and cloud architects to provision, manage, and optimize Oracle Database services on OCI. You'll learn how to streamline database operations across Base Database Service and Exadata Database Service, enhance availability with Data Guard, and leverage additional services like MySQL HeatWave and NoSQL Database Cloud Service. You'll gain the skills to efficiently handle backup, recovery, upgrades, and advanced security, all while reducing complexity and operational costs.

What You Will Learn

- SECTION I: Oracle Base Database Service

Module 1: Overview of Oracle Base Database Service

- Topics
- Oracle Base Database Service Overview
- Automated Database Lifecycle Operations under Customer Control
- Licensing Models and Oracle Database OCPU Options
- Virtual Machines: Database System Options & Shapes
- Storage Architecture, Fault Domains, Availability Domains, Regions
- Oracle Maximum Availability Architecture (MAA)
- Integrated Security: Data to Identity, Data Safe
- Learning Objectives
- Understand Oracle Base Database Service architecture and deployment
- Learn available licensing models and VM options
- Comprehend fault tolerance, MAA, and integrated security features

Module 2: Provisioning Base Database Service

- Topics
- OCI Networking Concepts: Region, VCN, Subnet, AD
- Identity and Access Management (IAM) Service and Policies

- Prerequisites for Launching a DB System
- Logging into OCI Console
- Creating VCN and Base Database Service DB System
- Viewing DB System Provisioning Status
- DB System Tags, OS Users, and SSH Connections
- Learning Objectives
- Set up and provision Base Database Service DB systems
- Configure networking, IAM policies, and SSH access

Module 3: Managing Base Database Service

- Topics
- DB System Management & Cloud Automation
- Viewing DB System and Database Details via OCI Console
- Scaling Storage and CPU (OCPUs)
- Creating Databases from Backup and Point-in-Time Restore
- Cloning Databases
- Enabling Oracle Data Guard
- Starting, Stopping, Rebooting DB System Nodes
- Pluggable Database (PDB) Life Cycle Management
- Terminating DB Systems
- Learning Objectives
- Manage database lifecycle, scaling, backups, and cloning
- Implement Data Guard and manage PDBs

Module 4: Backup and Recovery for Base Database Service

- Topics
- Backup Types and Destinations
- Cloud Automation for Backup Operations
- Zero Data Loss Autonomous Recovery Service
- Backup Retention and Automatic Backups
- Configuring Automatic Backups and On-Demand Backups
- Restore Options, including Standby Database
- Backup and Recovery Summary
- Learning Objectives
- Implement automated and manual backup strategies
- Restore databases from backups or standby systems

Module 5: Updates and Upgrades

- Topics
- Best Practices for DB System Updates and Upgrades
- Updating DB Systems, OS, Grid Infrastructure (GI), Database Home
- Viewing Patch History
- Preparing and Performing Database Upgrades (12c → 19c)
- Upgrading Databases with Data Guard

- Learning Objectives
- Plan and perform patching and upgrades safely
- Understand database upgrade operations and associated considerations
- SECTION II: Exadata Database Service

Module 6: Exadata Overview

- Topics
- Exadata Database Machine and Vision
- OLTP, Analytics, and Consolidation Optimizations
- Deployment Options: On-Premises, Cloud, Cloud@Customer
- Exadata Management Responsibilities & Lifecycle Operations
- Hybrid Cloud Architecture
- Security, Licensing, and Elastic OCPU Scaling
- Learning Objectives
- Understand Exadata service architecture and deployment options
- Learn performance and consolidation advantages of Exadata

Module 7: Provisioning Exadata Database Service

- Topics
- Network Architecture and Control Plane Configuration
- Exadata System Network Planning: DNS & NTP
- Activating Exadata Cloud@Customer Infrastructure
- VM Cluster Network and Resource Overview
- Learning Objectives
- Plan and provision Exadata Database Service environments
- Configure networks, control plane, and VM clusters

Module 8: Exadata Infrastructure and VM Cluster Management

- Topics
- Managing Exadata Cloud Infrastructure
- Responsibility Matrix and IAM Policies
- Infrastructure Maintenance: Types, Scheduling, History
- Scaling Exadata Infrastructure & VM Cluster Resources
- Multi-VM Clusters, Node Subsetting, VM Relocation, Power Management
- License Type Updates
- Learning Objectives
- Maintain and scale Exadata infrastructure
- Apply infrastructure updates, VM management, and cluster subsetting
- SECTION III: MySQL HeatWave

Module 9: MySQL HeatWave Overview

- Topics
- MySQL as #1 Open-Source DB and OLTP Optimizations
- HeatWave Features: OLTP, OLAP, ML, Lakehouse Integration

- HeatWave ML, Autopilot, Security, and Compliance
- Ease of Use and Enterprise Readiness
- Learning Objectives
- Understand MySQL HeatWave capabilities
- Learn benefits of HeatWave ML and Lakehouse integration

Module 10: Provisioning and Connecting MySQL HeatWave

- Topics
- Creating MySQL HeatWave Systems and DB Systems
- Creating Compute Instances, Connecting via SSH/MySQL Shell
- Loading Sample Data
- Learning Objectives
- Provision and connect to MySQL HeatWave
- Load and manage sample datasets

Module 11: MySQL HeatWave Migration

- Topics
- Migrating On-Premises MySQL to HeatWave
- Export/Import Data and Plan Migration
- Operating HeatWave Clusters (Start, Stop, Delete)
- Learning Objectives
- Execute MySQL database migration to HeatWave
- Manage HeatWave clusters and monitor operations

Module 12: Managing MySQL HeatWave

- Topics
- Maintaining, Monitoring, and Backup Strategies
- Performance Management
- Learning Objectives
- Maintain and monitor HeatWave for OLTP/OLAP workloads
- Implement backups and ensure performance
- SECTION IV: Oracle NoSQL Database Cloud Service

Module 13: Oracle NoSQL Overview

- Topics
- Product Overview, Licensing, Pricing Model
- Throughput Capacity: Read & Write Units
- Multi-Model Database and Feature Differentiators
- Security and Customer Connect
- Learning Objectives
- Understand NoSQL Cloud Service offerings and licensing
- Learn multi-model features and throughput management

Module 14: Connecting to Oracle NoSQL Database

- Topics
- Connecting Applications: Java, Python, Node.js, Go, .NET
- Using API, Configuration File, and IAM Credentials Provider
- Service Endpoints and Data Regions
- External and Oracle Cloud Databases Integration
- Learning Objectives
- Connect applications securely to NoSQL databases
- Configure credentials and endpoints for access
- SECTION V: Oracle Database Management Service (DBMS)

Module 15: OCI Database Management Overview

- Topics
- Key Use Cases: Monitoring, Administration, Management
- Supported Deployments: Autonomous, Cloud, On-Premises
- Oracle Observability and Management Platform
- Learning Objectives
- Understand OCI Database Management Service capabilities
- Learn supported deployment scenarios

Module 16: Enabling and Using Database Management

- Topics
- Prerequisites and Permissions
- Architecture for Cloud Databases
- Enabling Database Management for Oracle Cloud Databases
- Pricing Overview
- Learning Objectives
- Enable and configure Database Management Service for OCI

Module 17: Monitoring Cloud Databases

- Topics
- Cloud Database Metrics, Alarm Definition, Alert Logs
- Dashboards: Out-of-the-Box and Custom
- Diagnostics, Performance Hub, SQL Monitoring
- Exadata Monitoring, Top Activity Lite, RAC Monitoring
- AWR Explorer, SQL Tuning, SQL Plan Management
- Learning Objectives
- Monitor and tune cloud databases efficiently
- Use built-in tools for performance analysis and diagnostics

Module 18: Database Administration

- Topics
- Schema Management, Tablespace Management

- Optimizer Statistics Monitoring and Analysis
- Database Scheduler Jobs
- Learning Objectives
- Perform core administrative tasks on Oracle Cloud Databases
- Manage schema, storage, and scheduled jobs

This breakdown results in 18 comprehensive modules, covering Base Database Service, Exadata, MySQL HeatWave, NoSQL, and Database Management Service in a logical learning progression.