

Oracle Cloud Infrastructure Developer Professional (2025): Hands-on Workshop

Oracle Cloud Infrastructure

DURATION

4 Days

MODULES

10 Lectures

COURSE CODE

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Course Overview

Gain the skills required to build resilient, manageable, and scalable applications with Cloud Native. About this Course: Want to build resilient, manageable, and dynamically scalable applications faster? You're in the right place! Learn the fundamentals of Cloud Native technologies and their implementation. Gain essential knowledge and hands-on skills to harness the power of OCI Developer services. By the end of this course, you'll be able to develop and seamlessly deploy cutting-edge cloud-native applications with Oracle Cloud. Who should take this course: This course is ideal for Software Developers and Cloud-Native Application Developers who build, deploy, and manage applications on Oracle Cloud Infrastructure (OCI). Designed for Cloud Architects and Solution Architects, the course provides in-depth knowledge to design robust, high-performing, and secure OCI-based architectures, enabling them to optimize cloud solutions and align them with business objectives. Before taking this course: The OCI Foundations Associate course is the recommended prerequisite, providing essential foundational knowledge of Oracle Cloud Infrastructure to support your success in the OCI Developer Professional course. After completing this course, you should be able to: Explore the fundamentals of cloud-native technologies Manage containerized workloads and services using Container Engine for Kubernetes Enhance the security, observability, and network traffic management using Service Mesh Utilize OCI's serverless offerings to streamline application development and deployment Apply effective testing strategies for cloud-native deployments.

What You Will Learn

Module 01: Cloud Native Fundamentals

- Cloud Native Concepts
- Cloud Native Overview
- Cloud-Native, Cloud-Enabled, and Cloud-Based Applications
- Key Pillars of Cloud Native Development
- Benefits and Architecture
- Benefits and Challenges of Cloud Native Development
- Microservices Architecture: Overview
- Design Methodology of Microservices
- DevOps Foundations on OCI

- DevOps Overview
- OCI DevOps Service
- OCI DevOps CI/CD
- Development Tools
- Case Study: Developing Cloud Native Solutions on OCI
- OCI Code Editor Overview
- Demo: OCI Code Editor

Module 02: Container-Based Application Development

- Containerization and Docker
- Containerization Overview
- Docker Components
- Docker Operations
- Demo: Docker Basic Commands
- Working with Docker Images
- Demo: Working with Docker Images and Repositories
- Oracle Cloud Infrastructure Registry (OCIR)
- OCIR Introduction
- Managing Oracle Cloud Infrastructure Registry (OCIR)
- OCIR Image Concepts
- Hands-On Demos
- Demo: Managing OCIR – Create Repository
- Demo: Managing OCIR – Push Images
- Demo: Managing OCIR – Pull Images
- Demo: Managing OCIR – Image Management Tasks

Module 03: Managed Kubernetes on OCI

- Kubernetes and OKE Fundamentals
- Introduction to Kubernetes
- Introduction to Oracle Kubernetes Engine (OKE)
- Basic Clusters and Enhanced Clusters Overview
- Serverless Kubernetes with Virtual Nodes
- Cluster Prerequisites and Setup
- Prerequisites to Create an OKE Cluster
- Policy Configuration for Cluster Creation and Deployment
- Creating Kubernetes Clusters Using Console Workflows
- Demo: Create Cluster Using “Quick Create” Workflow (Managed Nodes)
- Cluster Access and Operations
- Accessing a Cluster Using kubectl
- Accessing a Cluster Using Cloud Shell and Local Terminal
- Demo: Setting Up Cloud Shell Access to OKE
- Demo: Setting Up Local Access to OKE
- Node Types and Workloads
- Comparing Virtual Nodes with Managed Nodes
- OKE Self-Managed Nodes: Overview and Prerequisites

- Application Deployment
- Demo: Deploying a Multi-Tier Application on OKE Using kubectl
- Pulling Images from Registry During Deployment
- Demo: Pulling Images from Registry During Deployment
- Kubernetes Integrations
- OCI Service Operator for Kubernetes
- Demo: Adding OCI Service Operator to OKE Clusters
- Demo: Deploy Oracle MySQL DB System Service from Kubernetes

Module 04: Serverless Functions on OCI

- Oracle Functions Fundamentals
- Oracle Functions Overview
- Functions Concepts
- Understanding Functions Operations
- OCI Functions Use Cases
- Function Development
- Prerequisites to Creating an OCI Function
- Demo: Functions QuickStart Using Cloud Shell
- Demo: Creating a Function from Existing Container Images
- Function Management and Scheduling
- Managing OCI Functions
- Scheduling OCI Functions
- Demo: Scheduling OCI Functions
- Demo: Using Cron Expressions to Schedule Functions (Part 1 & Part 2)
- Integration and Security
- Functions Integration with OCI Services
- Demo: OCI Functions Integration with OCI Services
- Pre-Built Functions Overview
- Function Image Security
- Observability
- OCI Functions Logs
- OCI Functions Metrics
- OCI Functions Tracing
- End of Course
- Review of Cloud Native Architecture on OCI
- Best Practices for Containers, Kubernetes, and Serverless
- Preparing for Production-Ready Cloud Native Applications

Module 05: API Management

- Overview
- API Gateway Overview
- OCI API Gateway: Introduction
- OCI API Gateway: Core Concepts
- Setup and Configuration
- Prerequisites for Using API Gateway

- Advanced API Capabilities
- Dynamic Authentication
- Dynamic Routing
- Operations and Observability
- Monitoring APIs

Module 06: Serverless Streaming

- Introduction
- Serverless Streaming Overview
- Key Features
- Core Concepts
- Streaming Fundamentals
- Design and Usage
- Common Use Cases
- Hands-on
- Demo: Working with OCI Streams

Module 07: Serverless Queues

- Introduction
- Queue Concepts and Overview
- OCI Queue Service
- OCI Queue Features
- OCI Queue Fundamentals
- OCI Queue Operations
- Architecture and Design
- OCI Queue Use Cases
- Choosing the Right Messaging Solution
- Hands-on
- Demo: OCI Queue

Module 08: Serverless Events

- Core Concepts
- Event Fundamentals
- Event Messages and Event Types
- Event Rules and Actions
- Rule Actions
- Hands-on
- Demo: Event Actions
- Working with Rules
- Demo: Rules Configuration
- Design and Use Cases
- Common Events Use Cases

Module 09: Testing & Securing Cloud Native Applications

- Cloud Native Testing
- Cloud Native Testing Overview
- Cloud Native Testing Strategies
- Secrets and Key Management
- OCI Vault: Introduction
- OCI Vault: Integration with OCI Services
- OCI Vault: Secrets
- Container and Image Security
- Image Security Fundamentals
- OKE: Container Image Security
- Demo: Scanning Container Images for Vulnerabilities
- Demo: Signing and Verifying Container Images
- Enforcing the Use of Signed Images from OCIR
- Demo: Enforcing Signed Images from OCIR
- Function and API Security
- Function Container Permissions
- OCI Certificates Integration
- Custom Trust Store
- Mutual TLS (mTLS) Support

Module 10: Monitoring & Troubleshooting Cloud Native Applications

- Overview
- Monitoring and Troubleshooting Fundamentals
- Observability Services
- Monitoring Service
- Logging Service
- Hands-on Observability
- Demo: Functions Metrics and Logs
- Demo: API Gateway Metrics and Logs
- Demo: OKE Cluster Metrics and Logs
- Performance and Tracing
- Application Performance Monitoring (APM)
- Demo: Oracle Functions Tracing
- Demo: Microservice Application Distributed Tracing
- Debugging
- Demo: Debugging Container Applications in OKE