Day - 1

Introduction to Containerd and Containerization Basics

- **Registration and Welcome**
  - Introduction to the course, instructors, and participants
  - Overview of the training objectives and agenda

- **Introduction to Containerd**
  - What is Containerd?
  - Importance and role of Containerd in the container ecosystem
  - Differences between Containerd and Docker

- **Containerization Fundamentals**
  - Understanding containers and their benefits
  - Overview of container runtimes
  - Introduction to OCI (Open Container Initiative) standards

- **Containerd Architecture**
  - Deep dive into Containerd architecture
  - Core components: containerd, runc, and shim
  - How Containerd manages containers and images

- **Installing and Configuring Containerd**
  - Setting up Containerd on various platforms (Linux, Windows)
  - Basic configuration and testing
  - Troubleshooting common installation issues

Managing Containers and Images with Containerd

- **Container Lifecycle Management**
  - Creating, running, and managing containers using Containerd
  - Image management: pulling, pushing, and storing container images
  - Working with namespaces in Containerd

- **Advanced Containerd Features**
  - Snapshotters: managing storage and images
  - Plugins and gRPC API: extending Containerd functionality
  - Working with containerd-shim

- **Managing Containers and Images**
  - Practical exercises on container and image management
  - Working with advanced features in a lab environment

- **Security and Best Practices**
  - Container security fundamentals
  - Securing Containerd environments
  - Best practices for deploying and managing Containerd in production

Day - 3

Containerd in Orchestration and Real-World Scenarios

- **Integrating Containerd with Kubernetes**
  - Role of Containerd as a container runtime in Kubernetes
  - Setting up Kubernetes with Containerd
  - Managing Kubernetes pods and services with Containerd

- **Containerd with Kubernetes**
  - Deploying applications on Kubernetes using Containerd
  - Troubleshooting common issues in Containerd-Kubernetes integration

- **Containerd in CI/CD Pipelines**
  - Using Containerd in Continuous Integration and Continuous Deployment workflows
  - Automating container builds and deployments with Containerd
  - Hands-on lab: Implementing CI/CD with Containerd

- **Real-World Use Cases and Case Studies**
  - Discussion of real-world scenarios where Containerd is used
  - Case studies: challenges and solutions in deploying Containerd at scale
  - Q&A session and open discussion