**Prerequisites in terms of knowledge for RedHat OpenShift – Basic training:**

* Proficiency in Basic OpenShift Concepts
* Familiarity with Continuous Integration/Continuous Deployment (CI/CD)
* Understanding of Kubernetes
* Basic Knowledge of Linux Systems Administration

**Learning outcomes of RedHat OpenShift – Basic training:**

* Proficiency in Basic OpenShift Concepts
* Familiarity with Continuous Integration/Continuous Deployment (CI/CD)
* Understanding of Kubernetes
* Basic Knowledge of Linux Systems Administration

**Day 1: Advanced Application Deployment and Management Strategies**

**Session 1: Advanced Deployment Strategies (1 hour)**

* Overview of deployment strategies (rolling, blue-green, canary)
* Implementing deployment strategies in OpenShift
* Benefits and considerations of each strategy

**Session 2: CI/CD Integration with OpenShift (1 hour)**

Continuous Integration (CI) and Continuous Deployment (CD) concepts

Integrating CI/CD pipelines with OpenShift

Using Jenkins or Tekton for CI/CD in OpenShift

**Session 3: Scaling and Autoscaling Applications (1 hour)**

* Scaling applications manually vs. autoscaling
* Configuring horizontal and vertical autoscaling in OpenShift
* Best practices for efficient scaling

**Session 4: Hands-on Lab: Application Deployment and Scaling (1 hour)**

* Hands-on exercises deploying applications using different strategies
* Practice scaling applications manually and configuring autoscaling

**Day 2: Storage, Networking, and Operator Framework**

**Session 5: Configuring Persistent Storage (1 hour)**

* Understanding persistent storage options in OpenShift
* Configuring PersistentVolume (PV) and PersistentVolumeClaim (PVC)
* Dynamic provisioning of storage in OpenShift

**Session 6: Advanced Networking and Service Mesh (1 hour)**

* Introduction to advanced networking concepts in OpenShift
* Implementing service mesh with Istio in OpenShift
* Traffic management and observability with service mesh

**Session 7: OpenShift Operators and Operator Framework (1 hour)**

* Introduction to Operators and Operator Framework
* Understanding custom resources and controllers
* Developing and deploying Operators in OpenShift

**Session 8: Hands-on Lab: Operator Deployment (1 hour)**

* Hands-on exercises deploying and managing Operators in OpenShift
* Creating custom resources and managing resources using Operators

**Day 3: Custom Resource Definitions (CRDs) and API Usage**

**Session 9: Custom Resource Definitions (CRDs) (1 hour)**

* Understanding Custom Resource Definitions (CRDs)
* Creating and managing CRDs in OpenShift
* Extending Kubernetes API with CRDs

**Session 10: OpenShift API and CLI Usage (1 hour)**

* Overview of OpenShift API and CLI
* Interacting with OpenShift using API and CLI
* Performing advanced operations using API and CLI

**Session 11: Hands-on Lab: API and CLI Usage (1 hour)**

* Hands-on exercises using OpenShift API and CLI
* Performing advanced operations such as resource creation, modification, and deletion

**Day 4: Review and Advanced Topics**

**Session 12: Review and Q&A (1 hour)**

* Recap of key concepts covered in the training
* Addressing any remaining questions or concerns

**Session 13: Advanced Topics and Best Practices (1 hour)**

* Exploring additional advanced topics based on participant interest
* Best practices for managing complex applications in OpenShift

**Session 14: Case Studies and Real-world Scenarios (1 hour)**

* Analyzing real-world deployment scenarios
* Case studies demonstrating best practices and lessons learned

**Session 15: Conclusion and Next Steps (1 hour)**

* Summary of the training program
* Guidance on further resources and next steps for continued learning