|  |  |  |
| --- | --- | --- |
| **Day** | **Time Schedule** | **Topics Covered** |
| 1 | 9:30 Am – 11:30 Am | 1. Kubernetes Deployments & RollOut & Back Operations 2. Kubernetes Networking & Services Introduction. |
|  | 11:30 Am – 11:40 am | Tea Break |
|  | 11:40 am – 1pm | 1. Service Networking: ClusterIP, NodePort & Load Balancer, Ingress Rules. |
|  | 1pm – 1:40 pm | Lunch break |
|  | 1:40 pm – 4:00 pm | 1. Application LifeCycle Management Introduction. 2. Deploying an Application, Rolling Updates, and Rollbacks. 3. Configuring an Application for High Availability and Scale |
|  | 4:00 pm – 4:10 pm | Tea Break |
|  | 4:10 pm – 6:30 pm | 1. Working with Kubernetes Scheduler. 2. Pod Scheduling within the Kubernetes Cluster 3. Taints, Tolerances, Node Selector, labels & Selectors |

**1. Kubernetes Networking and Service**

* Cluster Communications
* Pod and Node Networking
* Container Network Interface (CNI)
* Service Networking: ClusterIP, NodePort & Load Balancer
* Ingress Rules
* Cluster DNS
* Network Policies

**Lab:** Exposing Applications using various types of Services

**Lab:** Install and Configure Ingress Controller

**Lab:** Create Network Policies to control traffic flow

**2. Application Lifecycle Management**

* Pods: Single Container, Multi Container, Static, Init
* Deploying Applications in the Kubernetes Cluster
* Controllers: RS and Deployment
* Deploying an Application, Rolling Updates, and Rollbacks
* Configuring an Application for High Availability and Scale
* Imperative Commands & Manifests (YML Intro)

**Lab:** Deploying Application using Replication Controller

**Lab:** Deploying Application using Replica Set

**Lab:** Rolling Updates and Rollbacks using Deployment

**Lab:** Deploying Application using Daemon Set

**Lab:** Deploying StatefulSet Application

**Lab:** Deploying Multi-Tier Application

**3. Working with Kubernetes Scheduler**

* Pod Scheduling within the Kubernetes Cluster
* Configuring the Kubernetes Scheduler
* Running Multiple Schedulers for Multiple Pods
* Taints, Tolerances, Node Selector, labels & Selectors
* Scheduling Pods with Resource Limits and Label Selectors
* Displaying Scheduler Events

**Lab:** Manually scheduling Pod

**Lab:** Scheduling Pod based on Node Selector and Labels

**Lab:** Taints and Tolerations

**Lab:** Working with Affinity and Anti-Affinity