**KUBERNETES ADMIN**

No. of Hours: 20 Hours

**INTRODUCTION TO DOCKER**

* What is Docker
* Installing Docker on Windows, Linux
* Docker Pull, Build, Run
* Working with images
* Container Life cycle
* Dockerfile
* Pushing App to GitHub

**CONTAINER REGISTRY WITH DOCKER REGISTRY**

* Docker Container Registry (CR)
* Creation of Repos in CR
* CR Image Push/CR Image Pull
* CR integration
* CR Private and Public Repos

**INSTALLATION, CONFIGURATION AND VALIDATION**

* Design a Kubernetes Cluster
* Bootstrapping the Kubernetes Control Plane
* Configure API Server
* Configure Scheduler
* Configure Controller Manager Bootstrapping the Kubernetes Worker Nodes
* Configure Container Runtime
* Configure Kubelet/Configure Kube Proxy
* Configure CNI Networking
* Configure kubectl

**K8S STORAGE VOLUMES**

* Overview of Storage classes
* Persistent Volume – HostPath
* Persistent Volume - NFS
* Overview of volume mode
* Access modes
* Reclaim policies for volumes
* Persistent Volumes
* Persistent volume claims primitive

**MANAGING STATEFULSET**

* What is StatefulSet ?
* Why StatefulSet?
* Manage StatefulSet?
* Managing Headless Service StatefulSet?
* DNS Entry?
* Storage with StatefulSet?

**ADVANCED CONTAINER ORCHESTRATION**

* Installing Kubernetes CLI Tools
* Creating an Kubernetes Cluster
* Deploying a Microservices Apps to Cluster
* Performance Testing, Teardown, and Cleanup
* Persistent Storage in Kubernetes
* Primitives for PersistentVolumeClaims
* Secrets and ConfigMaps

**NETWORKING IN KUBERNETES**

* Understand CoreDNS
* Configure Custom DNS for Pod Ingress – Host Based
* Ingress – Path Based Ingress with TLS

**CONTINUOUS MONITORING – PROMETHEUS AND GRAFANA**

* Introduction to Prometheus
* Grafana Overview
* Installation and setup for Prometheus
* Installation and setup for Grafana Setup
* Monitoring using Prometheus
* Dashboard Visualization using Grafana
* Creating a Dashboard to monitor the Pipeline

**REVISE MANAGING RESOURCES**

* Managing Pods
* Managing Labels and Selectors
* Managing Replication Controller and Replica Set Managing Service
* Managing Deployments Managing DaemonSet

**HELM**

* Understand Helm and Helm Charts Helm Commands
* Deploy Kubernetes Dashboard using Helm
* Create Helm Charts
* Deploy Applications using Helm Chart
* Testing Helm Charts
* Upgrade Application using Helm Charts