Sherdil IT Academy

DevOps Engineer Course Outline

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DEVOPS PREREQUISITES:

- Basic IT (Information Technology) Knowledge
- An understanding of networking concepts
- Hardware /Software required
- PC /Laptop with minimum 08 GB RAM and Virtualisation features
- Oracle Virtual Box or VMWare

Course Content(s)

S.No	Topics	Training Method
1.	Linux Essentials • 01. LINUX ESSENTIALS • Introduction • Differences between Windows, OS X, and Linux • Installation • File system • Linux Basic Commands • Shell scripting • Directory structure / permission • Storage / configuration • Archiving and compression • System monitoring tools • Job scheduling • Services • Rpm / yum	Theory / Hands On Lab
2.	GIT • Version Control System • Git Introduction • Installation of Git • Configuration of Git • Local Repository • Initialising Git Repository • Git Basic Example • Git branch, Git Merge • Git Diff • Git Clone • Securing Git using ssh-keys • Git Remote Repository • Git Logs	Theory / Hands On Lab

3.	Docker ● Introduction to Docker ● Install & Setup Docker on Linux ● Remove, Downgrade, Upgrade ● Storage & Logging driver ● Docker Registry ● Docker Images ● Docker Containers ● Docker Diagnose ● Docker file ● Docker Compose ● Docker Swarm ● Docker Stack ● Docker Networking ● Docker Services ● Docker Volume ● Docker Swarm vs Kubernetes	Theory / Hands On Lab
4.	Kubernetes ● Kubernetes and its importance ● Background & future ● Need of Kubernetes & Big picture ● What is Kubernetes for ● Micro-services, What, Why and How ● Containerisation and Kubernetes ● Docker and Container Lifecycle ● Working with Docker images	Theory / Hands On Lab
4.1.	KUBERNETES WALKTHROUGH ● Architecture of Kubernetes ● Cluster Architecture ● Kubernetes core concepts ● Overview of other installations' options ● Kubernetes API primitives	Theory / Hands On Lab
4.2.	APPLICATION ENVIRONMENT, CONFIGURATION ● Pods, labels/selectors, replication controllers, services, API Services and other network primitives ● Deployments, jobs, and services ● Declarative vs imperative mode ● Getting Started with YAML ● Interacting with kubectl	Theory / Hands On Lab
4.3.	OBSERVABILITY & MAINTENANCE ● Pods health checks ● Readiness/Liveness Probe ● Understand how to monitor applications ● Manage application logs ● Use label selectors to schedule Pods ● Understand how resource limits	Theory / Hands On Lab
4.4.	APPLICATION DEPLOYMENT & LIFECYCLE MANAGEMENT ● Understand Deployments and how to perform rolling updates and rollbacks ● Know various ways to configure applications ● Know how to scale applications ● Understand the primitives necessary to create a self- healing application	Theory / Hands On Lab

4.5.	STORAGE / PERSISTENCE ● Understand persistent volumes and know how to create them ● Understand access modes for volumes ● Understand persistent volume claims primitive ● Understand Kubernetes storage objects ● Know how to configure applications with persistent storage	Theory / Hands On Lab
4.6.	SERVICES & NETWORKING ● Understand the networking configuration on the cluster nodes ● Understand Pod networking concepts ● Understand service networking ● Deploy and configure network load balancer ● Know how to use Ingress rules	Theory / Hands On Lab
4.7.	TROUBLESHOOTING BEST PRACTICES ● Troubleshoot application failure ● Troubleshoot control/worker plane failure ● Troubleshoot networking	Theory / Hands On Lab
4.8.	BONUS TOPICS ● Managed Kubernetes ● Getting Started with Kubernetes on EKS ● Guide to pass CKAD / CKA exam	Theory / Hands On Lab
5.	Jenkins ● Introduction ● Download and Install Jenkins ● Jenkins Configuration ● Jenkins Plugins ● Security Management ● Freestyle jobs ● Integration of Jenkins with GIT ● Build Web via Code ● Building a Jenkins Pipeline (CI/CD)	Theory / Hands On Lab
6.	Ansible ● About Ansible ● How to Install Ansible ● Configuring SSH and Sudo for Ansible ● The Ansible Configuration File ● Setting Up the Ansible Inventory ● The Ansible Command ● The Shell and Command Modules ● Ansible course summary	Theory / Hands On Lab

V1.3 (September 2024)