DEVOPS COURSE CONTENT

DURATION: 45 HOURS

AUDIENCE

Developers, Architects, IT Administrators, System Administrators, Testers.

COURSE COVERAGE

Module-1: Linux & Networking Basics – 3 hours

o   OS Basics

o   Basic commands File system

o   Software management

o   User management

Hands-on

- ✓ Basic_Linux_Commands
- ✓ User and app management

Module-2: Introduction to DevOps - 3 Hours

o   What is DevOps?

o   Benefits of DevOps

o   DevOps Pipeline and DevOps tools

Module 3: Git with Github – 3 Hours

o   Introduction to Version Control System and its benefits Distributed vs Centralized

o   Introduction Git and GitHub

o   GitHub Service - introduction, account creation, API Tokens Architecture of Git and its workflow Clone, Commit, Push, Pull, Log, Diff

Hands-on

- ✓ Create_and_Clone_a_GitHub_Repository
- ✓ rebase Branch and resolve conflicts
- ✓ Push_file_to_GitHub_Repository

Module 4: Git with Github – 3 Hours

- o Branch and Release management (tags, Releases)

- o Advanced Git concepts - Stash, Merge / Rebase, Conflict management, Reset

Hands-on
- ✓ Create_Branch_in_Git
- ✓ Switching_Branches_in_Git
- ✓ Merging_Branches_in_Git

Module-5: Build tool – Maven - 3 Hours

- o Introduction to Build tools

- o Architecture of Maven

- o Lifecycle phase

Hands-on
- ✓ Build tool
- ✓ Create Maven project
- ✓ Compile a maven project

Module 6: CI with Jenkins - 3 Hours

- o Introduction to Continuous Integration & Jenkins What is CI/CD?

- o What is Jenkins? And how does it work?

- o Architecture and Installation of Jenkins

- o Job Types and Freestyle Job

- o Managing Plugins

Hands-on
- ✓ Integrate_Git_with_Jenkins
- ✓ Creating_a_Freestyle_Build_Job

Module 7: CI with Jenkins - 3 Hours

- o Distributed Jenkins

- o User Management

- o Jenkins Pipeline Jobs

Hands-on

- ✓ Integrate_Maven_with_Jenkins
- ✓ Create a pipeline Job to end to end pipeline

Module 8: Configuration Management with Terraform - 3 Hours

- o Introduction to Configuration Management and Terraform
- o Terraform architecture - Providers, Resources, State and Manifests
- o Init, Plan and Apply
- o HCL Introduction - Variables, Count, Conditionals

Hands-on

- ✓ Install and initialize Terraform
- ✓ Create_an_S3_Bucket_Using_Terraform
- ✓ Create EC2 with terraform

Module-9: Configuration Management with Ansible – 3 Hours

- o Configuration Management with Ansible
- o Ansible architecture - Modules, Inventory and connection protocols
- o AdHoc commands
- o Ansible Playbooks

Hands-on

- ✓ YAML Scripting
- ✓ Setup apache web server using ansible
- ✓ Ansible Modules
- ✓ Creating and working with Ansible roles

Module 10: Containerization using Docker – 3 Hours

- o Introduction to Containerization and Docker
- o Architecture & working of Docker
- o Benefits of Docker

Hands-on

- ✓ Performing CRUD Operation on Containers

Module 11: Containerization using Docker – 3 Hours

- o Images and Containers
- o Dockerhub
- o Workflows - container lifecycle

Hands-on
- ✓ Creating a Docker Image
- ✓ Docker Compose Setup
- ✓ Docker Registry

Module 12: Container orchestration with Kubernetes – 3 Hours

- o Understanding Container orchestration
- o Kubernetes Architecture
- o Setup a 3-node cluster

Hands-on
- ✓ Kubernetes_Installation_and_Cluster_Setup
- ✓ Pod Creation

Module 13: Container orchestration with Kubernetes – 3 Hours

- o Understanding Pods, Deployments and Services
- o Storage and Volumes
- o Kubernetes Networking
- o Service publishing

Hands-on
- ✓ Create Deployment
- ✓ Deploy service
- ✓ Publish service

Module 14: Monitoring and metrics – Prometheus + Grafana - 3 Hours

- o Understanding Monitoring and its benefits.
- o Prometheus: Architecture and installation
- o Scraping Metrices
- o Monitor VMs and physical machines

- o Monitor Containers

Hand-on

- ✓ Install Prometheus and Grafana
- ✓ Expose docker metrics
- ✓ Scrap metrics with Prometheus
- ✓ Create dashboard with grafan