DevOps Course Syllabus

1. Overview of DevOps

- Why DevOps?
- What is DevOps?
- DevOps Market Trends DevOps Engineer Skills
- DevOps Delivery Pipeline
- DevOps Ecosystem

2. Virtualization:

- Introduction
- What is Virtualization
- Server Virtualization
- Desktop Virtualization
- Application Virtualization

3.Cloud Computing Introduction

- What is Cloud Computing
- Why Cloud Computing?
- Advantages of Cloud Computing
- What is Private Cloud
- What is Public Cloud
- What is Hybrid Cloud
- What is Software as a Service (SaaS)
- What is Platform as a Service(PaaS)
- What is Infrastructure as a Service (IaaS)

4. AWS Cloud Introduction

- High Availability concepts.
- Amazon Elastic Compute Cloud(EC2).
- Amazon Simple Storage Service (S3)
- Elastic Block Storage (EBS)
- Elastic Load Balancing (ELB)
- Amazon Relational Database Service (RDS) Amazon DynamoDB

- Auto Scaling
- Identity and Access Management (IAM)
- Virtual Private Cloud (VPC)
- Custom Network creation.

5. Linux

- All-important Linux commands.
- The Linux filesystem.
- File permissions.
- Process management.
- User account management.
- Software management.
- Networking in Linux.

6. Shell Script

- Introduction
- Type of shells
- Variables
- Types of variables
- Operators
- Input arguments
- String comparison
- Athematic comparison
- File conditions
- If, loops, case, functions
- Examples

Apache webserver:

- Installations
- Configuration

Tomcat application server:

- Installation, configuration
- Tomcat manager
- Application management
- Application deployment

7. Version Control with Git – DevOps Syllabus

- What is version control?
- What is Git?
- Why Git for your organization
- Install Git
- Common commands in Git
- Working with Remote Repositories
- Branching concepts
- Merging concepts
- Real time Common issues

8.Maven:

- Introduction, Maven Structure
- Maven Dependencies
- Maven Repositories
- Maven Plugins and goals
- Integrated Maven Build
- Maven project

9.SonarQube Overview:

- Installation & Configuration of SonarQube
- Initiate code-scan with SonarQube server
- SonarQube dashboard
- Sample project to check code scan
- Maven integration with SonarQube
- Real-time use cases on SonarQube

10. Git, Jenkins & Maven Integration

- Branching and Merging in Git
- Git workflows
- Git cheat sheet
- What is CI.
- Why CI is Required
- Introduction to Jenkins (With Architecture)
- Introduction to Maven

11. Continuous Integration using Jenkins

- Jenkins Management
- Adding a slave node to Jenkins
- Building Delivery Pipeline
- Pipeline as a Code
- Implementation of Jenkins
- Build the pipeline of jobs using Jenkins
- Create a pipeline script to deploy an application over the tomcat server

12. Continuous Deployment: Containerization with Docker

- Introducing Docker
- Understanding images and containers
- Running Hello World in Docker
- Introduction to Container
- Container Life Cycle
- Sharing and Copying Base Image
- Docker file Working with containers
- Publishing Image on Docker Hub

13. Containerization with Docker: Ecosystem and Networking – DevOps Syllabus

- Introduction to Docker Ecosystem
- Docker Compose
- Docker Swarm
- Managing Containers
- Running Containers
- Introduction to Docker Networking
- Network Types
- Docker Container Networking

14. Containerization using Kubernetes

- Revisiting Kubernetes
- Cluster Architecture
- Spinning up a Kubernetes Cluster on Ubuntu VMs
- Exploring your Cluster
- Understanding YAML
- Creating a Deployment in Kubernetes using YAML
- Creating a Service in Kubernetes
- Installing Kubernetes Dashboard
- Deploying an App using Dashboard
- Using Rolling Updates in Kubernetes
- Containers and Container Orchestration

15. Continuous Monitoring with Grafana

- Introduction to Continuous Monitoring
- Introduction to Grafana
- Installing Grafana
- Grafana Prometheus and Objects
- Grafana Prometheus configure to Kubernetes.

16. Ansible

- Introduction to AWS Various
- AWS services
- DevOps using AWS
- Control node.
- Managed nodes.
- Inventory.
- Playbooks. Plays. Roles. Tasks. Handlers.
- Modules.
- Plugins.
- Collections.

17. Terraform

- Introduction to Terraform
- Getting started with Terraform.
- Terraform Modules
- Terraform: Writing in a more organized way
- Terraform with AWS: lab Part 1
- Terraform
- Terraform Integration
- Terraform with AWS: Lab Part 2
- Terraform Troubleshooting and Testing
- Extending Terraform

- Terraform Best Practices

18.Python Basics

- Introduction to Python
- List, Ranges & Tuples in Python
- Input and Output in Python
- Python Object Oriented
- Python Regular Expressions
- Python Necessity DevOps

Practice:

- Project
- Material
- Resume Preparation
- Tasks List
- Mock Interview