DevOps - Course Curriculum

Module 1: Introduction to DevOps and its Necessities

Learning Objectives - In this module, you will learn what is DevOps and its necessities, DevOps roles, day-to-day problems & their solutions. You will also learn about the various infrastructure layouts and understand Scalability and Availability.

Topics - DevOps, DevOps Roles, DevOps Necessities, DevOps Problems & Solutions.

Module 2: Key Concepts of DevOps

Learning Objectives - In this module, you will learn about key concepts of DevOps

Topics - Identifying cultural impediments and overcoming it, Building Accountability and Trust, Understanding the Infrastructure layouts and its Challenges, Understand Scalability and Availability, Networking Concepts from an enterprise perspective.

Module 3: DevOps Process

Learning Objectives - In this module, you will learn about making a DevOps Transition, the process involved.

Topics – Why Change culture, why change organization, addressing objections, understanding stereotypes

Module 4: Source Control Management Tools

Learning Objectives - In this module, you will learn about installation and configuration of SVN & Git, difference between SVN & Git

Topics – Basic of Source Control Management, Checkin, File Merge, Repositories, History, Branches, Merging Branches, Choosing a SCM

Practical to be covered – Using source control: commit, check out and rollback to previous build.

Module 5: CI / CD Tool: Jenkins

Learning Objectives - In this module, you will learn about Installation & Configuration Jenkins.

Topics – What is Jenkins, Installation of Jenkins, Integration with SVN, Remote command execution, creating a Jenkins Job, Managing Jenkins plugin.

Practical to be covered - Jenkins installation and setup, Jenkins and SVN integration, Jenkins Remote execution, Build job by sending an email.

Module 6: Provisioning Tool: Chef

Learning Objectives - In this module, you will learn about the Basics of Chef, Chef Cookbooks, Chef Architecture, Tools - Knife & Scripting and Chef Development Kit.

Topics - Chef Recipes, Chef Cookbooks, Chef Architecture, Tools - Knife & Scripting, Chef Development Kit (ChefDK)

Practical to be covered - Command Line Tools: Chef and Knife Commands.

Module 7: Automation Tool: Ansible

Learning Objectives - In this module, you will learn about the basics of Ansible, Ansible Playbooks, Ansible Inventory/Dynamic Inventory, Ansible Patterns.

Topics - Infrastructure as Code, Ansible Installation, Ansible Communication framework, Ansible Playbooks, Ansible Inventory/Dynamic Inventory, Ansible Patterns, Sample Scripts

Practical to be covered - Ansible Installation, Ansible Playbooks.

Module 8: Containerization: Dockers

Learning Objectives - In this module, you will learn about the Docker.

Topics – Introducing Containers, Installing and updating Docker, Major Docker Component, Container management, building from a Docker file, working with Registries, Docker Networking, Docker Commands, Building Docker Images, Monitoring and Alert

Practical to be covered – Docker installation, Configuring & Managing Docker, Creating Containers, Upgrading Docker, Building Images.

Module 9: Log Analysis Tool: ELK Stack

Learning Objectives - In this module, you will learn about ELK Stack i.e. Elasticsearch, Logstash and Kibana.

Topics – Installation of Elasticsearch, Logstash and Kibana, creating an index in Elasticsearch, Query in Elasticsearch, Cluster setup & upgrade for Elasticsearch, Configuring Logstash input, output & fillter, loading data into Kibana, Kibana Search, and Creating customized Kibana visualization

Practical-
Setup ELK stack with 3 node Elasticsearch. Setup forwarders to send logs to Logstash. Setup buffer for log processing using Redis. Parse logs. Analyse logs in kibana.

Module 10: Logging & Monitoring Tool: Nagios

Objectives- Understanding working of Nagios at core and extending it by writing custom plugins.

Topics- Nagios Architecture, Nagios Objects, Nagios plugins, Installation and configuration, NRPE, Nagios groups, Defect detection

Practicals- Write Nagios Plugin for custom disk check