

Cloud Computing Syllabus

Module 01

- Introduction to DevOps
- Why DevOps?
- What is DevOps? DevOps Lifecycle Development
- Testing
- Integration • Deployment • observability Security
- Operation
- DevOps tools
- DevOps trends
- Responsibilities of a DevOps Engineer • SDLC, Agile development and Scrum. • DevOps : The real stories
- AWS
- Netflix

Module 02

- Operating Systems & Linux
- Introduction to Operating System
- Architecture and File system of Linux
- General purpose Commands
- Networking Concepts
- Package managers - Installing Software on Linux
- SSH - Secure shell
- Shell Scripting
- Networking
- The OSI Model - The 7 layers
- Network protocols

Module 03

- Cloud Computing: AWS
- Core concepts of cloud computing
- Cloud Service Models.
- IaaS, PaaS and SaaS • Deployment Models. Public, Private, Hybrid • Introduction to AWS
- Recognise AWS Global Infrastructure.
- Understanding AWS Free-tier
- IAM: Manage Users, Roles and Permissions
- AWS Compute Services:
- EC2

- AWS Storage Service:
- EBS, EFS and S3
- Networking VPC:
- Understanding VPC, CIDR, Subnets, Route tables, Security Groups,
- NACL, Load Balancers, NAT, Internet gateway

Module 04

- Version Control System: Git
- Git in Overview
- Git concepts and Architecture
- Getting and creating projects
- Basic Snapshotting
- Branching and Merging
- Sharing and updating projects
- Inspection and comparison
- Patching

Module 05

- Build Automation & CI/CD with Jenkins
- Intro to Build Automation
- Maven and Gradle
- Continuous Integration
- Introduction to Jenkins
- Jenkins Architecture
- Jenkins Master-Slave Architecture
- Jenkins management
- Installation of Jenkins in Docker
- Installation of Plugins in Jenkins
- Jenkins Delivery Pipeline
- Jenkins Declarative Pipeline
- Creating jobs in Jenkins
- Creating jobs using git Web-hook
- Webhooks in Jenkins

Module 06

- Infrastructure as Code: Terraform
- What is Infrastructure as a code
- IaC Vs Configuration Management
- Introduction to Terraform
- Installing Terraform
- Basic Operations in Terraform
- Init, Plan, Apply, Destroy
- Terraform Code Basics.
- Deploying Compute infrastructure on AWS using Terraform
- Terraform - Variables
- Terraform - Providers
- Terraform - Provisioners
- Terraform - State

Module 07

- Configuration Management: Ansible
- What is Ansible?
- Ansible Architecture.
- Setting up Ansible Server.
- Ansible Playbook.
- •Ansible Role.
- •Applying configuration using Ansible.

Module 08

- Containerization: Docker
- What is Container?
- Difference Between Containers and VMs
- Containers VS Images
- Docker Architecture and key components
- Hands-On with Docker commands.
- Creating Containers using Dockerfile, pull and push from Docker registry.
- Lifecycle of Containers
- Containerising Applications· Docker Networking & Security

Module 09

- Kubernetes
- Introduce to Kubernetes• Kubernetes components• Kubernetes Architecture
- Local setup of Kubernetes (Kind &/ Minikube).
- Kubernetes Deployment Overview
- Kubernetes Statefulsets Overview
- Kubernetes Daemonsets Overview
- Kubernetes Service, Secrets, ConfigMap, Volumes, PVC, PV and Storage Class Overview
- Working with first Pods, Microservice Deployment,Introducing Helm
- Basic Working with Helm

Project

- Core Project
- Live Project

Certificate