**DevOps and AWS**

**Module I:** Version Control System

* Installation & Git configuration
* Branching strategy
* Git user workflow
* Branching & Stash
* Git commands (merge, pull, push, revert, reset etc.,)
* How to rectify conflicts
* How to create new pull request

**Module II:** Build Management

* Understanding Build Automation
* Java Build system
* Understanding Maven architecture
* Maven Lifecycle & standards

**Module III:** Deployment Tool (Tomcat)

* How to deploy java base application
* Integration with Jenkins
* Deployment application using Jenkins
* Deployment application using Ansible

**Module IV:** Containerization

* Understanding Containers vs Virtual Machines
* Docker Architecture
* Get to know Docker Components
* Docker Installation & setup
* Docker Container Management – Container creation, start, stop, renaming, logs, deletion, stats, events
* Docker Images
* Data Volumes & Port redirection
* Building Images Interactively using containers
* Dockerfile & its Instructions
* Deploying a Registry server
* Microservice Architecture
* Docker-Compose & configuration file

**Module V:** Deployment Orchestration (EKS, Kubecops & Kubeadm)

* Kubernetes Architecture
* Install and Configure Master Controller
* Install and Configure the nodes
* Kubectl: Exploring our Environment
* Create and Deploy Pod Definitions
* Tags, Labels and Selectors
* Deployment State
* Kubernetes Deployment vs Statefulset vs Daemonset
* Difference between Configmaps vs Secrets
* Good knowledge on PV & PVC
* Multi-Pod (Container) Replication Controller
* Create and Deploy Service Definitions
* Creating Pod Definitions
* Labeling Your Pod Definition
* Creating Temporary Pods at the Command line
* Interacting with Pod Container
* Logs, Autoscaling and Scaling ourPods
* Failure and Recovery
* Running a Command in Your Pod Containers
* Package Management using Helm

**Module VI:** Continuous Integration, Continuous Deployment

* Need of Continuous Integration
* Understanding Jenkins Architecture
* Master & Slave configurations
* Plugin Management
* Configuring different types of Jobs
* Security & Authentication in Jenkins
* Overview of popular plugins
* Jenkins Role based Authentication
* Integrate LDAP with Jenkins
* CI with code coverage, code analysis & continuous delivery
* Practical examples of different Jenkins use cases
* Jenkins Pipeline
* Backup & Restore of Jenkins jobs
* Migration of Jenkins

**Module VII:** Helm Package Manager

* Package Management in Kubernetes
* Charts and Repositories
* Helm Releases

**Module VIII:** Cloud Computing

* Understanding Cloud computing
* AWS Account Basics
* Identity & Access Management (IAM)
* Virtual Private Cloud (VPC)
* Simple Storage Service (S3)
* Elastic Compute Cloud (EC2)
* Elastic Load Balancer (ELB)
* Auto Scaling
* Relational Database Service (RDS)
* AWS Lambda
* API Gateway
* Amazon Cognito
* Simple Notification Service (SNS)
* Simple Queue Service (SQS)
* Simple Email Service (SES)
* Systems Manager Agent (SSM Agent)
* Elastic Container Registry (ECR)
* Elastic Container Service (ECS)
* ELK Stack: Elasticsearch, Logstash, Kibana
* Elastic Beanstalk
* Elastic File System (EFS)

**Module IX:** Infrastructure As A Code

* Terraform Lifecycle
* Resources and Dependencies
* Variables
* States & Backends
* Loops & Modules
* Terraform Modules
* Providers, Provisioners, Data Source

**Module X:**

* Ansible Setup
* Playbooks
* Roles

**Module XI:** Monitoring Tools

* Grafana
* Datadog
* Kibana
* AWS Cloudwatch

**Module XII:** Scripting tools

* Shell scripting
* Python scripting

**Module XIII:** Databases

* Mysql
* Postgres
* Mongo DB

**Module XIV:** Real-time Scenarios

Here we can do all topics with real time