

DevOps & DevSecOps - Customized

Duration: 5 Days (8Hours/ day)

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Git & GitHub

Module 1 – Git & GitHub

- Introduction to Version Control System
- History of Git
- Git Basics
- States in Git
- Installing Git
- Configuration of Git
- Working with Repositories
- Basic Git Commands
- Working with Remotes
- Tagging
- Git Branching
- Git Merge
- Introduction to GitHub
- Git Clone
- Git Pull & Push

Kubernetes

Module 1 – Core Concepts

- Overview of Container Orchestration
- Introduction to Kubernetes
- Kubernetes Architecture

Module 2 – Installation, Configuration & Validation

- Design a Kubernetes Cluster
- Installation of Kubernetes Master and Nodes
- Choose a Network Solution
- Verify Installation

Module 3 – Managing Resources

- Managing Pods
- Managing Labels & Selector
- Managing Replication Controller & Replica Set
- Managing Service

Module 4 – Scheduling Manual Scheduling

- Taint and Tolerations
- Node Selector

Module 5 – Application Lifecycle Management

- Overview of Deployment
- Deployment Strategies
- Managing Deployment
- Canary Deployment
- Blue-Green Deployment

Module 6 – Environment Variable

- Plain Key
- Config Map Secret
- Mount Variable as Volume

Module 7 – Storage Volumes

Persistent Volumes
Persistent Volume Claim

Module 8 – Security

Kubernetes Authentication
Managing Users in Kubernetes
Service Account
Managing Roles and Role Binding
Managing Cluster Role and Cluster Role Binding
Security Context

DevOps & DevSecOps Pipeline - Jenkins

Module 1 – Jenkins & DevOps Pipeline

Jenkins Introduction
Jenkins Plugin Installation
Understanding Jenkins Pipeline
Creating Jenkins Job with UI
Creating Jenkins Job with Pipelines
Using Jenkins Credentials
Configuring Tools in Jenkins
Building Job on Remote Hosts
Deploy Webserver through Jenkins
Jenkins Pipeline – Checking Versions
Understanding the Use case
Running Microservices on Local Machine
Maven Basics
Jenkins GitHub Integration and Maven Build
Unit Tests Basic
Unit Test and JaCoCo

Module 2 – DevSecOps Pipeline

Git Hooks and Talisman Introduction
Talisman Demo
Mutation Tests – PIT Basics
Mutation Tests – PIT Demo
SonarQube introduction
SonarQube – Quality Gate
SAST SonarQube Testing
SonarQube Authentication Clarification
Vulnerability Basics
Dependency Check Basics
Dependency Check Demo
Trivy Basics
Trivy Image Scan
Integration Tests
DAST Basics
OWASP ZAP Basics
OWASP ZAP – Basics
OWASP ZAP – Jenkins Scan