**Introduction to DevOps**

What is Devops Workflow

Software Development with and without DevOps

Basic Overview of DevOps Tools

**Linux for DevOps Engineers**

Linux Overview - Ubuntu

Features and Advantages of Linux

Linux File System

Basic Linux Commands

Lab – Linux Installation and configuration (Local, VM, AWS)

Advanced Linux Commands

Package Management in Linux

**Git -VCS**

What is Version Control System – Git Overview

Git in Action – Git-Workflow

GitHub – Working with Remote Repositories

Collaboration – Working with Other Developers

Git Branches and Merging

**Maven**

Introduction to Maven

Maven Core Concepts – Co-ordinates, Goals, pom.xml

Working with Maven – Eclipse IDE

Working with Maven – Linux

**AWS – Working with Basic AWS services.**

Introduction to Cloud Computing on AWS

AWS Basics – Global Infrastructure, Management Console, IAM, AWS CLI

Compute Services - Amazon EC2 (Elastic Compute Cloud)

Storage Services - Amazon S3 (Simple Storage Service), Amazon EBS (Elastic Block Store)

Database Services - Amazon RDS (Relational Database Service), MySQL

Networking - Amazon VPC (Virtual Private Cloud), Route 53 (Domain Name System)

Kubernetes - Elastic Kubernetes Service (Amazon EKS), Load Balancing, Autoscaling

**SonarQube**

SonarQube Introduction

Installation and Console Overview

Integrating with Jenkins

**Jenkins**

Jenkins Overview

CI-CD Overview – Jenkins as an Automation Server

Integrating tools and Plug-ins into Jenkins

Working with Jenkins

**Docker**

Docker Overview – Software Development with Docker

Working with Docker – docker run and other commands

Working with Docker Images – Docker Hub

Docker Registry, Docker Engine

Storage and Networking in Docker

Docker Compose and Docker Swarm

**Kubernetes**

Kubernetes Overview – Features and Advantages

Kubernetes Concepts – Architecture; PODs, Replica Sets and Deployments, Services

Networking in Kubernetes, Micro Services Architecture

Kubernetes on Cloud

**Ansible**

Ansible Overview – Architecture and Components

Ansible Playbooks and Modules

Introduction to YAML

Multi-Tasking with Ansible, Variables, Notify and Handlers

Ansible Vault and Roles

**Terraform**

Infrastructure as a Code – Terraform Overview

Terraform Architecture, Components and Workflow

Terraform Setup – Working with AWS

Working with Terraform – state file, providers, variables, and modules.

**Grafana**

Continuous Monitoring in DevOps

Introduction to Grafana

Getting Started with Grafana

Dashboard and Variables

**CI-CD using Git, Maven, Jenkins, Docker, Ansible and Kubernetes**

Building a complete Ci-Cd pipeline to deploy an Apache Tomcat based Application using Git, Maven, Jenkins, Docker, Ansible and Kubernetes

**CI-CD using AWS Tools**

AWS Code Pipeline

AWS Code Build

AWS Code Deploy

AWS Code Commit

AWS Cloud Formation

AWS Lambda

AWS Cloud Watch

**Project Work**