**Duration: 5 Days**

**Day wise Course Outline:**

**Day 1:**

**DevOps Fundamentals**

* Introduction to DevOps
* DevOps Process
* DevOps Team
* Architecture application for DevOps
* DevOps Technology Reference Architecture

**Linux Fundamentals**

* Linux File system
* Working with File permissions
* Essential Commands
* Manipulating processes

**Automate Cloud IaaS for DevOps**

* Cloud Fundamentals:
  + Different Cloud computing service models.
  + Understanding IAAS, PAAS and SAAS.
  + Automate Cloud IaaS for DevOps
* Introduction to AWS
* AWS EC2 Overview
* AWS Storage overview
* AWS Network Overview
* AWS Automation using Cloud formation
* Lab: Automating Infrastructure in Cloud
* DIY: Create a Reference Architecture Automation

**Day 2:**

**Source Code Repository in GIT**

* GIT Fundamentals
* GIT Branching and Merging
* Various GIT Commands
* Working with Remote repositories - GITHub and BitBucket
* Lab: Working With GIT
* Lab: GIT Branching and Merging
* Lab: Code Commit, Code PUSH, PULL – GITHub, BitBucket.

**Continuous Integration, Delivery and Deployment.**

* Continuous Integration Fundamentals
* Continuous Delivery Fundamentals
* CI/CD with Jenkins.
* Various Jenkins JOB templates.
* Pipeline as a code.
* Discuss and work towards setting up End-to-End delivery Pipeline
* Understand all required components of delivery Pipeline.
* Lab: Install and Configure Jenkins
* Lab: Create a Simple pipeline in Jenkins
* Lab: Configuring Jenkins in CentOS server procured in Lab 1
* Lab: Integrating Jenkins with GIT
* Lab: Configuring Sample Maven Build in Jenkins

**Day 3**

**CI/CD continued**

* Lab: Integrating Jenkins with Docker
* Lab: Integrating Jenkins with Ansible
* Lab: Configuring End to End Delivery Pipeline in Jenkins
* Lab: Running Continuous Deployment Using Jenkins
* LAB: Jenkins Administration, Backup and Security.

**Configuration Management using Ansible**

* Ansible Fundamentals
* Ansible setup and configuration
* Ansible Modules
* Ansible in adHoc mode – Ansible commands
* Introduction to YAML
* Ansible playbooks – writing multiple playbooks
* Introduction and working with Ansible Roles
* Working with variables
* Working with Facts and Decision statements.
* Ansible Playbook for Java application deployment.
* Introduction to Ansible Galaxy.

**Day 4**

**Ansible Continued,**

* Code Portability
* Masking data using Ansible Vaults.
* Introduction to Ansible Tower.
* Automating Application setup using Ansible playbooks.
* Jenkins and Ansible Integration:
  + Perform App deployment to TOMCAT using Jenkins and Ansible integration.
* Lab: Managing Application config in Ansible
* Lab: Creating and Running Docker using Ansible

**Container Concepts**

* Containers Fundamentals
* Why containers
* Containers V/S VM’s
* Docker Architecture and Dataflow
* Docker Installation and Setup
* Docker commands.

**Day 5:**

**Docker Containers**

* Docker Container and Operations
* Docker Image and Operations
* Docker Hub
* Docker Custom Image creations
* Docker Network Fundamentals
* Persistent Volumes with Docker
* Deploying applications to Containers
* Lab: Various application docker containers for webservers like nginx, httpd and tomcat.

**Introduction to Kubernetes**

* Kubernetes architecture
* Working with Minikube
* Introduction to RedHat OpenShift with Minishift.
* Hosting Containerized Application in OpenShift Kubernetes cluster environment.
* Various Kubernetes cloud services. (Introduction to EKS)