***DevOps with AWS***

**Course Content**

* **DevOps Model Defined**
* **How DevOps Works**
* **Benefits of DevOps**

**DevOps Practices**

**The following are DevOps best practices:**

* **Source Code Management**
* **Continuous integration**
* **Continuous Delivery**
* **Microservices**
* **Infrastructure as Code**
* **Monitoring and Logging**

**Tools Covered in this course:**

**Source Control Management(GIT)**

* **Introduction to SCM**
* **Installing GIT**
* **Creating GitHub Forks**
* **Making Changes in Git**
* **Branches and Tags**
* **Pull Requests**

**Build Automation (Gradle)**

* **Introducing Build Automation**
* **Installing Gradle**
* **Understanding Gradle and its Basics**
* **Automated Testing**

**Continuous Integration (Jenkins)**

* **CI Overview**
* **Installing Jenkins**
* **Setting up Jenkins Projects**
* **Triggering Builds with Git Hooks**

**Continuous Delivery (Jenkins)**

* **Introducing Jenkins Pipelines**
* **Jenkins Pipeline Stages and Steps**
* **Deployment with Jenkins Pipelines**

**Containers (Docker)**

* **Why Containers?**
* **Installing Docker**
* **Docker Basics**
* **Builiding a Dockerfile**
* **Running with Docker on Jenkins**
* **Jenkins Pipelines CD and a Dockerized App**

**Orchestration (Kubernetes)**

* **Orchestration**
* **Creating a Kubernetes Cluster**
* **Kubernetes Basics**
* **Deploying to Kubernetes with Jenkins**

**Monitoring**

* **Monitoring**
* **Installing Prometheus and Grafana**
* **Cluster Monitoring**
* **Alterting**

**Self-Healing**

* **Kubernetes and Self-Healing**
* **Creating Liveness Probes in Kubernetes**

**Autoscalling**

* **Kubernetes and Autoscaling**
* **Horizontal Pod Autoscalers in Kubernetes**

**Canary Testing**

* **What is Canary Testing?**
* **Implementing a Canary Test in Kubernetes**
* **Kubernetes Canary Testing with Jenkins Pipelines**

**Fully-Automated Deployment**

* **Understanding Fully Automated Deployment**

**Configuration Management (Ansible)**

* **Ansible Introduction and Architecture**
* **Ansible Installation and Configuration**
* **Where to Find Documentation**
* **Ad-hoc Ansible Commands**
* **Ansible Playbooks**
* **Working with Ansible Variables**
* **How to use Ansible Facts**
* **Troubleshooting and Debugging Ansible**
* **Understanding Handlers in Ansible**

**Infrastructure as Code (Terraform)**

* **What is Terraform**
* **Installing Terrraform**
* **Terraform Commands**
* **Creating Infrastructure using Terraform on AWS Cloud**

***AWS Cloud***

**Introduction:**

* **AWS** Certified Solutions Architect Associate
* AWS Fundamentals: IAM & EC2
* High Availability and Scalability: ELB & ASG
* EC2 Storage – EBS & EFS
* AWS Fundamentals: RDS + Aurora + ElastiCache
* Route 53
* Classic Sloutions Architecture Discussions
* Amazon S3 Introduction
* AWS CLI, SDK, IAM Roles & Policies
* Advanced S3: CloudFront, Snowball, Storage Gateway, Athena
* Decoupling applications: SQS, SNS, KINESIS, ACTIVE MQ
* Serverless Overviews from a solution Architect Perspective
* Serverless Solution Architecture Discussions
* Databases in AWS
* AWS Monitoring & Audit: CloudWatch, Config & CloudTrail
* AWS Security & Encryption: KMS, SSM Parameter Store, IAM &STS
* Networking –VPC
* Other Services
* WhitePapers and Architectures – AWS Certified Solutions Architect Associate