DevOps Engineer

System Requirements for this course:

Windows 10 or Mac OS latest / i5 or above / 8 GB RAM / 40 GB HDD

This training comprises of **four** major areas

- Fundamentals of Agile / DevOps
- Operating Systems and Source Code Management Systems
- DevOps Tools, Practices & Cloud Computing
- Automation & Scripting

➢ Fundamentals of Agile / DevOps

Agile Overview

- Waterfall SDLC
- Agile Project Management

DevOps Overview

- DevOps concepts
- DevOps tools

Hands On:

Sample Projects and DevOps Use cases

➢ Operating Systems and Source Code Management Systems

Servers & Operating Systems

- Windows
  - Intro to Windows
  - Service Management in Windows
- Linux
  - Intro to Linux
  - Linux Basic Commands
  - Networking in Linux
  - NFS / File Storage / Process Management in Linux

Hands On:

Virtual box setup, Linux installation, Linux fundamentals

Source Code Management Systems

- Git / Git Hub
- Subversion

Hands On:

GIT Installation, Version Control, Working with remote repository
Branching and merging, Stashing, rebasing, reverting and resetting

➢ DevOps Tools, Practices & Cloud Computing

Continuous Integration

- Jenkins / CI pipelines
- Build tools with Maven / Gradle
- Code quality with SonarQube
- Library management with Artifactory & Nexus
- Opensource Scanning with Blackduck / Snyk

Hands On:
Jenkins installation, use console, master slave setup, build pipeline setup and configure security
Sonar Installation, understand code quality metrics
Artifactory installation, use library management
Snyk installation, use open source checks

Continuous Deployment

- Jenkins / CD pipelines
- Infrastructure and config management with Ansible
- Deployment automation with Playbooks
- Ansible tower, Roles
- Introduction to Puppet and Chef
- Test automation with Selenium

Hands On:
Ansible installation, configure Ansible, write playbooks, execute commands
Puppet installation, configure and implement servers
Selenium installation, crate test cases and integrate Selenium with Jenkins
Create and deploy sample application using Jenkins deployment pipelines

Logging, Tollgates & Monitoring

- Log monitoring in Jenkins, Tomcat etc.
- Introduction to tollgates & Tollgates with Jenkins
- Monitoring & Telemetry with Ngios, Elk etc.

Hands On:
Nagios installation, monitor with Nagios
Tollgate implementation in Jenkins pipelines

Containerization & Microservices

- Introduction to Microservices
- Docker basics and commands.
- Push/Pull images from Docker Hub.
- Container operations such as start / start / restart
- Building Docker containers with Dockerfile and Docker compose
- Container orchestration with Kubernetes
- Advanced Kubernetes with namespaces, services, storage classes, auto scaling etc.

Hands On:
Install Minikube, Kubernetes cluster creation, cluster management, kubectl basics
Create and implement Docker images and containers

Cloud Computing

- Fundamentals of concepts such as IaaS, PaaS, SaaS
- Overview of services available on AWS
- Run a sample application on AWS EC2
- Solution Architecture – HA / DR strategies on Cloud
- IaaS with Terraform and AWS Cloud formation templates
- IaaS with Packer, Vault and Consul
- Introduction to Google Cloud Platform

Hands On:
AWS registration, foundational services, IAM and elasticity management

➢ Automation & Scripting

Batch & Shell scripting

- Batch scripting in Windows
- Shell scripting in Linux
- Automation of repetitive tasks on servers

Hands On:
Scripting techniques and sample script programming

Python Scripting

- Introduction program, Datatypes and Variables
- Loops / Iterations / File IO
- Data structures (Lists / Dicts / Sets)
- Python Modules

Hands On:
Python installation, practice Python fundamentals with sample programs