DevOps Engineer Path

Course Overview:

- DevOps is a methodology, that blurs the line between a Developer and a SysOps people.
- It is evolved from the Agile methodology, DevOps takes it to the next step by even making the Ops part of the company Agile.
- DevOps is a set of software development practices that combines software development and information technology operations to shorten the systems development life cycle while delivering features, fixes, and updates frequently in close alignment with business objectives.
- This training would enable you to grasp the concepts of how DevOps transformation, It will help you focus on value and streamline delivery and also learn about the common infrastructure servers, scalability, and availability.
- In This course you will Learn:
- Linux, DevOps Lifecycle, Delivery Pipeline Managing Source Code – Git and GitHub Using Build tools, Maven, POM Containerization using Docker Continuous Integration using Jenkins Continuous Testing using Junit and Selenium Kubernetes Configuration Management using Chef Configuration Management using Ansible Continuous Monitoring using Nagios AWS Cloud architecture Terraform Infrastructure as Code Setting Resource Dependencies

In this Learning path

1. **DevOps Engineer**

Why DevOps Engineer Certifications ?

This training would enable you to grasp the concepts of how DevOps transformation, It will help you focus on value and streamline delivery and also learn about the common infrastructure servers, scalability, and availability.

DevOps jobs are highly paid and in great demand, so start on your path today.

Audience Profile :

- Software Developers
- Technical Project Managers
- Architects
- Operations Support
- Deployment engineers
- IT managers
- Development managers

Prerequisites:

- Working Experience in the Software Development Field.
- Basic Knowledge of IT Networking and Infrastructure.

DevOps Engineer Outline:

Module 0 – DevOps Perquisites

- Linux Basics
- Application Basics
- Networking Basics
- Web Servers Basics
- YAML

Module 1 – DevOps Essentials

- Why DevOps?
- What is DevOps?
- Agile and DevOps
- DevOps Lifecycle
- DevOps Market Trends
- DevOps Delivery Pipeline
- DevOps Ecosystem & Use Case
- Introduction to Virtualization
- Introduction to Cloud Computing

Module 2 – Managing Source Code – Git and GitHub

- Overview of Version Control systems
- Central vs Distributed Control systems
- Introduction to Git
- Git file workflow
- Important Git Commands
- Branching and Merging, Stashing, Rebasing, Reverting and Resetting
- Introduction to GitHub
- Using Git and GitHub together.

Module 3 – Understanding and using Build tools

- Overview of Various Build tools
- What is Maven
- Maven Plugins
- Maven Archetypes
- Project Object Model (POM)
- Source Control Integration

Module 4 – Containerization basics using Docker

- What and Why of Containers
- Difference between VMs and Containers
- Docker Architecture and Components
- Image Distribution using Docker Hub
- Working with Containers and Docker Hub

Module 5 – Continuous Integration using Jenkins

- Overview of Continuous Integration
- Overview of Jenkins
- Jenkins architecture
- Installing and Configuring Jenkins
- Jenkins Management
- Jenkins Build Pipeline
- Installing and configuring Jenkins
- Creating a build using Jenkins
- Integrating with Jenkins
- Working with Jenkins Pipelines

Module 6 – Continuous Testing

- Overview of Continuous Testing
- Software Testing Life cycle
- Different Types of Testing
- Test -Driven Development Approach using Junit
- Testing Web Applications using Selenium
- Test-Driven Development Approach using Junit, Working with Selenium

Training Solutions:

√ Offline Classroom Instructor-Led Training in our labs or onsite Locations.

√ Virtual Instructor-Led Training Via Virtual Video Conferencing Tools.

Why Learners Prefer CLS as their Training Services provider ?

■ Premuim Training Services Accredited from Global Technology Vendors.

■ Best Rated Experts & Certified Trainers in Egypt.

■ Official Training Hours, Practice Labs, Hands-on Learning.

■ CLS Training Classrooms are designed with High Edge PCs and Training Facilities.

■ Return on Training Investment is Guaranteed to boost performance.

Course Outline - Continued

Module 7 – Docker Commands and Use-cases

- Docker Files
- Docker Compose
- Docker Networking
- Docker Swarm
- Building Images using Docker File
- Creating multi-containers using Docker Compose
- Creating User-Defined Networks
- Working with Docker Swarm

Module 8 – Introduction to Kubernetes

- Basics of Kubernetes container orchestration
- Differences between Docker Swarm and Kubernetes
- Kubernetes Architecture
- Installing Kubernetes using Kubeadm
- Creating Pods and Deployments using YAML
- Selectors & Labels in Kubernetes
- Using ReplicaSets & Rolling Updates
- Scheduling the applications on the container
- Services in Kubernetes

Module 9 – Configuration Management using Chef

- Chef Fundamentals
- Chef Architecture & Components – Server, Workstation
- Chef Reources
- Recipes and Cookbooks
- Chef Resources
- Using AWS OpsWorks
- Creating Stack using AWS OpsWorks

Module 10 – Configuration Management using Ansible

- Overview of Configuration Management
- Introduction to Ansible
- Ansible Architecture
- Ansible Components
- Writing Ansible Playbooks
- Working with Ansible Modules
- Creating Roles using Ansible Galaxy
- Write Ansible playbooks for Configuration Management Tasks.

Course Outline - Continued

Module 11 – Continuous Monitoring using Nagios

- Introduction to Nagios
- Nagios Plugins
- Nagios Objects
- Nagios Commands & Nagios Notifications
- Installing Nagios
- Monitoring different servers using Nagios

Module 12 : Define the AWS Cloud

- Identify different types of cloud deployment models
- Define the benefits of the AWS cloud including
- Security,Reliability,High Availability & Elasticity
- Agility,Pay-as-you go pricing and Scalability

Module 13 : Explain the different cloud architecture design principles

- Explain the design principles
- Design for failure
- Decouple components versus monolithic architecture
- Implement elasticity in the cloud versus on-premises
- Recognize the elements of the Shared Responsibility Model
- Describe the customer's responsibly on AWS
- Identify AWS ECR – Elastic Container Registry
- Identify AWS Fargate Serverless compute for containers
- Overview about AWS Lambda

Module 14 : Terraform

- How is Terraform different from Chef, Puppet, Ansible & Salt?
- Why not AWS Management Console?
- Infrastructure as Code, execution plans, resource graphs, change automation
- Preparing an AWS account to use with Terraform
- Preparing an Execution Plan
- Working with Configuration Files

Module 15 : Setting Resource Dependencies

- Using the Terraform Resource Graph
- Infrastructure vs application dependencies
- Deploying Infrastructure
- Previewing configuration changes
- Executing changes,Managing State
- Configuring a backend using AWS S3 and AWS DynamoDB