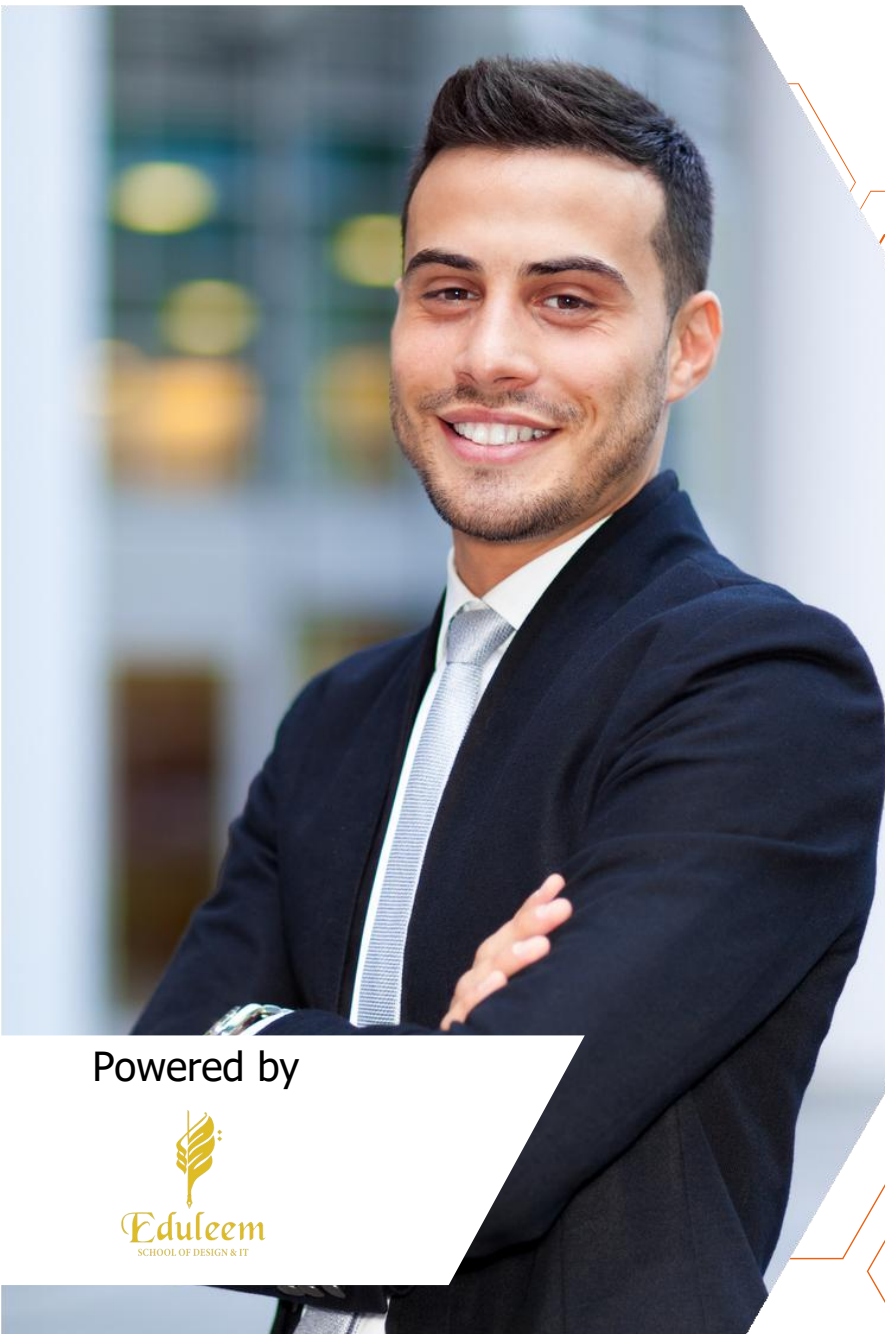


Devops Certification Training Course



Powered by

About the Program

Eduleem's DevOps Training Program will provide you with in-depth knowledge of various DevOps tools including Git, Jenkins, Docker, Ansible, Terraform, Kubernetes, Prometheus, and Grafana. This DevOps Certification course is completely hands-on and designed in a way to help you become a certified practitioner through best practices in Continuous Development, Configuration Management and Continuous Integration, and finally, Continuous Monitoring of software throughout its development life cycle.

Program Overview:

This course provides a comprehensive introduction to the DevOps methodology. It is designed to equip students with the knowledge and skills required to build, deploy, and operate software applications in a DevOps environment. Throughout the course, students will explore various aspects of DevOps

Key Features of the Program



Labs



Theory class



Online Class



Trainer Guidance



Resume Guidance



Doubt Sessions



Practitioner

About Eduleem

Eduleem is an innovative and forward-thinking education company dedicated to transforming the way students learn and engage with knowledge. We believe in the power of education to shape lives, empower individuals, and create a brighter future. Our mission is to provide comprehensive educational solutions that inspire a love for learning, foster critical thinking skills, and equip students with the tools they need to succeed in a rapidly evolving world. Eduleem has Tag Line Defined Unfurl your Imagination on Education



Eligibility Criteria

Anybody working in Operations or Development/Engineering teams can opt for a career in DevOps. To become a DevOps Engineer, you may start your career as a Software Engineer/Developer, System Administrator, Automation Test Engineer, or Operations Manager and then progress to become a Release Manager, DevOps Test Engineer, Automation Expert, and finally a full-fledged DevOps Engineer.

The DevOps Engineer Training Online is for those who seek to fast-track their career in the software development industry. People working in the following roles will benefit the most from the DevOps Engineer Course:

- IT Team Leaders
- Software Developers
- Systems Administrators and IT Managers
- Cloud Engineers
- Developers
- Engineers



Course Joining Process

Candidates can apply to the Eduleem's DevOps Course in 3 simple steps:



Course Enquiry

Connect with our education counsellors to get indetailed information about the course through calls & email



Reviewing the course content

Our education counsellor's team will share you the course content to review and to know what you are going to learn throughout the course



Joining course

After the fee discussion your admission for joining course will be confirmed.

Talk to an Admissions Counselor

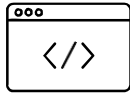
- Talk to an Admissions Counselor We have a team of dedicated admissions counselors here to help guide you in the application process and related matters.
- They are available to Address questions related to the application Assist with financial aid (if required) Help you better understand the program and answer your questions

Who is this Program Ideal for?



The Eduleem DevOps Program is designed for individuals who have a passion for creativity, problem-solving, and a desire to learn DevOps. Whether you are a high school graduate exploring career options, a working professional looking to switch careers, or someone with a natural flair for DevOps, our program welcomes individuals from various backgrounds. No prior experience or formal education in DevOps is required. If you have a passion for DevOps and a desire to learn, our program provides the necessary knowledge, skills, and practical experience to kickstart your journey in this exciting field.

Program Outcomes



Code



Test



Build



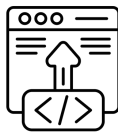
Release



Plan



Monitor



Deploy



Operate

DevOps Course Curriculum

Overview of DevOps

Goal: In this module, you will be introduced to the DevOps environment.

Objectives: After completing this module, you should be able to

- Understand the benefits of DevOps over other software development processes
- Gain insights into the DevOps environment
- Get an overview of different DevOps Tools
- Get a picture of the working of the DevOps Delivery Pipeline

Topics:

- Introduction to DevOps
- Benefits of working in a DevOps environment
- DevOps Lifecycle
- DevOps Stages
- DevOps Delivery Pipeline

Version Control with Git

Goal: In this module, you will gain insights into Source Control Management and learn the functionalities of Git

Objectives: After completing this module, you should be able to

- Understand Version Control
- Perform management of files for small as well as large projects
- Perform various Git commands such as git add, git fetch, git commit, git init, etc.
- Work with remote repositories
- Version Control
- Git Introduction
- Git Installation
- Commonly used commands in Git
- Working with Remote repository

Hands On:

Git Common Commands

- Working with Remote Repository

Git, Jenkins & Maven Integration

Goal: In this module, you will learn about the different actions performed through Git and will be introduced to Jenkins and Maven

Objectives: After completing this module, you should be able to:

- Execute branching and merging operations
- Perform various Git commands
- Understand Maven Architecture and dependencies
- Learn about Continuous Integration & its importance
- Understand Jenkins and its features

Topics:

- Branching and merging in Git
- Merge Conflicts
- Stashing, Rebasing, Reverting and Resetting
- Git Workflows
- Introduction to Maven
- Maven Architecture
- Introduction to Continuous Integration
- Introduction to Jenkins

Hands On:

- Branching and Merging
- Merge Conflicts
- Stashing, Rebasing, Reverting, and Resetting
- Configuring Maven

Continuous Integration using Jenkins

Goal: In this module, learn how to perform Continuous Integration by building applications with the help of Maven and create deployment pipelines using Jenkins.

Objectives: After completing this module, you should be able to

- ♦ Managing authorization in Jenkins
- ♦ Jenkins notification management
- ♦ Master-slave architecture in Jenkins
- ♦ Add a slave node to Jenkins master
- ♦ Build and deploy codes using Jenkins
- ♦ Build pipeline plugin in Jenkins
- ♦ Use Declarative pipeline in Jenkins

Topics:

- ♦ Jenkins Architecture
- ♦ Plugin Management in Jenkins
- ♦ Jenkins Security Management
- ♦ Notification in Jenkins
- ♦ Jenkins Master-slave architecture
- ♦ Jenkins Delivery Pipeline
- ♦ Jenkins Declarative pipeline

Hands on:

- ♦ Create pipeline view using DevCompile and QUnitTest
- ♦ Adding Slave node in Jenkins
- ♦ Build Pipeline project using Groovy script

Configuration Management Using Ansible

Goal: Learn how to manage and configure your infrastructure using Ansible Ad-Hoc commands, Playbooks, and Roles.

Objectives: After completing this module, you should be able to

- ♦ Utilize Ansible CLI
- ♦ Execute Ansible Ad-Hoc Commands for one-off tasks
- ♦ Automate host servers using Ansible Playbooks
- ♦ Use Variables in Playbooks
- ♦ Using Handlers

Topics:

- Introduction to Configuration Management
- Infrastructure as Code
- Introduction to Ansible
- Ansible Architecture
- Inventory Management
- Ansible Modules
- AD-HOC Commands
- Ansible Playbooks
- Ansible Roles

Hands on:

- Ad-Hoc Commands
- Running a Simple Playbook
- Using Variables and handlers
- Using Ansible Roles

Containerization using Docker Part – I

Goal: This module introduces learners to the core concepts and technology behind Docker. Learn in detail about containers and various operations performed on them.

Objectives: After completing this module, you should be able to

- Understand Containerization
 - Learn the evolution of virtualization to containers
 - Understand the Docker Architecture
- Perform Various actions using Docker CLI
Bind container ports to the Machine ports
Run containers in different modes
Write and build a Dockerfile to create a Docker Image

Topics:

- Containerization
- Namespaces
- Docker
- Docker Architecture
- Container Lifecycle
- Docker CLI
- Port Binding
- Detached and Foreground Mode
- Dockerfile
- Dockerfile Instructions
- Docker Image

Hands on:

- Docker CLI Commands
- Port Binding
- Starting Containers in Different Modes
- Writing a Dockerfile to Create an Image

Containerization using Docker Part – II

Goal: Learn how to use Docker Hub registry, deploy a multi-tier application using Docker Compose, and create a swarm cluster.

Objectives: After completing this module, you should be able to

- Use Docker Hub to store custom Images
- Store data in Container Volumes for persistent storage
- Setup Docker Compose
- Deploy a multi-container application using Docker Compose
- Deploy a Swarm Cluster

Topics:

- Docker Registry
- Container Storage
- Volumes
- Docker Compose
- Docker Swarm

Hands On:

- Setting up Docker Hub
- Docker Volumes
- Installing Docker Compose
- Installing a Multi-Container Application using Compose
- Running Docker in Swarm Mode

Orchestration using Kubernetes Part – I

Goal: In this module, you will learn about Container Orchestration and Basic of container management using Kubernetes.

Objectives: After completing this module, you should be able to

- Understand Container Orchestration
- Learn about Kubernetes Core Concept
- Deploy Pods
- Create Deployments to manage Pods
- Launch DaemonSets for Background applications
- Update and Rollback your Deployments
- Scale your containerized Applications

Topics:

- Introduction to Container Orchestration
- Kubernetes Core Concepts
- Understanding Pods
- ReplicaSet and Replication Controller
- Deployments
- DaemonSets
- Rolling Updates and Rollbacks
- Scaling Application
- Hands On:
- Kubectl Common Commands
- Deployments
- DaemonSets
- Rolling-update and Rollbacks
- Scaling in Kubernetes

Orchestration using Kubernetes Part – II

Goal: Learn and deploy different service discovery mechanisms, utilize Volumes for persistent storage and deploy StatefulSets for stateful applications.

Objectives: After completing this module, you should be able to

- Deploy different Kubernetes Services
- Utilize Volumes to store Persistent Data
- Create Persistent Volume Claims to attach volumes to Pods
- Understand Persistent Volume Claims Primitives
- Use Headless Services in Stateful Sets
- Deploy Helm Charts

Topics:

- Services
- Persistent Storage in Kubernetes
- Primitives for Persistent Volume Claims
- Secrets and Config Maps
- Headless Services
- StatefulSets
- Helm Charts

Hands On:

- Deploying Services
- Persistent Volumes and Persistent Volume Claims
- StatefulSets
- ConfigMaps and Secrets
- Helm Charts

Monitoring using Prometheus and Grafana

Goal: In this module, you will learn how to collect, monitor, and visualize data using Prometheus and Grafana.

Objectives: After completing this module, you should be able to

- Understand Continuous Monitoring
- Use Prometheus to monitor services
- Create an alerting mechanism using Prometheus
- Deploy Grafana dashboards to visualize data
- Integrate Prometheus and Grafana to monitor a full pipeline

Topics:

- Introduction to Prometheus and Grafana
- Prometheus and Grafana Setup
- Monitoring using Prometheus
- Dashboard Visualization using Grafana
- Creating a Dashboard to monitor the Pipeline

Hands On:

- Monitoring Service using Prometheus
- Alerting using Prometheus
- Grafana Dashboards
- Monitoring a Pipeline

Provisioning using Terraform Part – I

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Goal: Learn how to provision and manage infrastructure on a Cloud Platform (AWS) using Terraform Configuration Files.

Objectives: After completing this module, you should be able to

- Understand Provisioning using Terraform
- Learn the Difference between Terraform vs Ansible
- Understand Terraform Architecture
- Deploy a Terraform Configuration File
- Use Basic Terraform Commands
- Manage Terraform Resources

Topics:

- Introduction to Terraform
- Terraform vs Ansible
- Terraform Architecture
- Terraform Configuration
- Terraform Common Commands
- Managing Terraform Resources

Hands On:

- Setting Up AWS and Terraform
- Executing a Terraform Configuration
- Managing Terraform Resources
- Referencing Terraform Resources

Provisioning using Terraform Part – II

Goal: Use Terraform State commands to manage the current state of your infrastructure. Deploy a fully usable and working infrastructure using Terraform.

Objectives: After completing this module, you should be able to

Perform Terraform State Commands
Deploy a Terraform Project on AWS

Topics:

Terraform State
Terraform Project

Hands On:

Terraform State Commands
Terraform Project

Nagios (Self-Paced)

Goal: Learn how to continuously monitor your tasks using various plugins and implementing Nagios Commands

Objectives: After completing this module, you should be able to

- ◆ Operate Continuous Monitoring tools
- ◆ Use various plugins and objects associated with Nagios
- ◆ Implement Nagios commands

Topics:

- ◆ Introduction to Continuous Monitoring
- ◆ Introduction to Nagios
- ◆ Installing Nagios
- ◆ Nagios Plugins(NRPE) and Objects
- ◆ Nagios Commands and Notification

Hands-On:

- ◆ Installing Nagios
- ◆ Monitoring of different servers using Nagios

DevOps on Cloud (Self-Paced)

Goal: Learn about various cloud services and service providers, also get the brief idea of how to implement DevOps using AWS.

Objectives: After completing this module, you should be able to

- ◆ Understand about cloud and its advantages
- ◆ Learn about Various cloud computing services
- ◆ Get an idea of how to implement DevOps using AWS

Topics:

- ◆ Why Cloud?
- ◆ Introduction to Cloud Computing
- ◆ Why DevOps on Cloud?
- ◆ Introduction to AWS
- ◆ Various AWS services
- ◆ DevOps using AWS

AWS EC2 and IAM (Self-Paced)

Goal: Get a brief idea of how Security and EC2 Compute service works in AWS Cloud.

Objectives: After completing this module, you should be able to

- Describe AWS Global Infrastructure and its Benefits
- Sign-up an AWS free-tier account
- Work with AWS Management Console and AWS CLI
- Work with IAM Service
- Understand Virtualization
- Work with EC2
- Analyze various EC2 box configurations available

Topics:

- Virtualization
- Amazon Web Services (AWS)
- Benefits of AWS
- AWS Global Infrastructure
- AWS: IAM
- Components of IAM
- Managing users with IAM
- Amazon Machine Image (AMI)
- Security Groups in AWS
- Virtualization
- Amazon Elastic Compute Cloud (EC2) and Its Benefits
- Networking components associated with EC2
- Instance Store

Hands-on:

- Signing up for a Free Tier Account with AWS
- Creating New User to Log in to AWS Management Console
- Creating Policies for New User to Have All Admin or Limited Privileges
- Different Approaches to connect to an EC2 instance
- Creating a Custom AMI
- Host your Website Inside your EC2 Instance
- To Attach EFS Volume to an EC2 Instance
- Login to AWS Console via MFA

DevOps on Cloud (Self-Paced)

Goal: Learn about various cloud services and service providers, also get the brief idea of how to implement DevOps using Azure DevOps (AZ400)

Objectives: After completing this module, you should be able to

- Understand about Azure DevOps and its advantages
- Learn about Various cloud DevOps services
- Get an idea of how to implement DevOps using Azure DevOps

Topics:

Introduction to Azure DevOps:

Overview of the Azure DevOps platform and its various tools and services

Planning and Implementing DevOps Development Processes:

Covers agile methodologies, branching and merging strategies, code quality, security, and compliance.

Implementing Continuous Integration:

Covers setting up and configuring build agents, creating and managing builds, and integrating with thirdparty build systems

Implementing Continuous Delivery:

Covers creating and managing release pipelines, deploying applications, and managing release approvals and gates.

Implementing Dependency Management:

Covers managing package dependencies and artifacts using Azure Artifacts and other third-party package managers

Implementing Application Infrastructure:

Covers infrastructure as code (IaC) principles and uses tools such as Azure Resource Manager (ARM) templates and terraform to deploy and manage infrastructure

Implementing Continuous Feedback:

Covers setting up and using monitoring and logging systems, creating, and managing test plans and test suites, and integrating with other feedback sources.

Designing a DevOps Strategy:

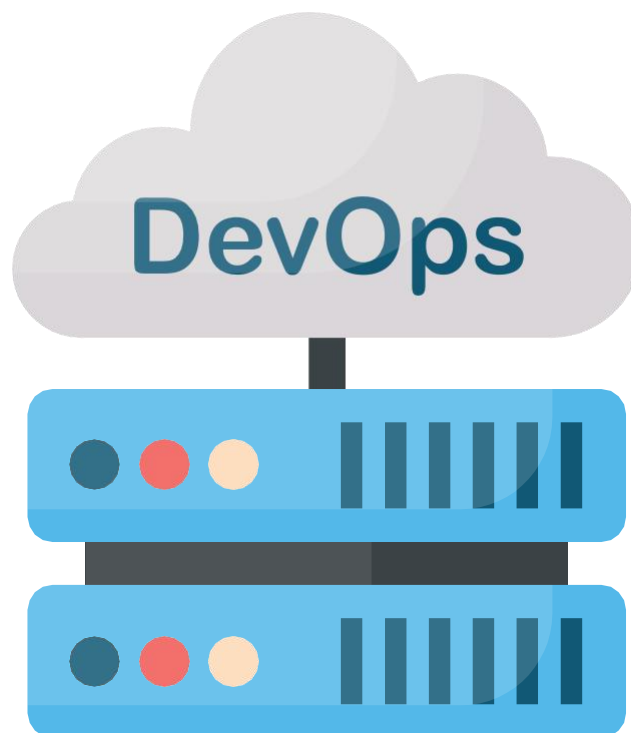
Covers designing and implementing a DevOps strategy, including selecting the appropriate tools and services for a given scenario and implementing DevOps security and compliance.

DevOps Adoption and Change Management:

Covers planning for DevOps adoption, including change management, stakeholder management, and team structures.

Azure DevOps Services and Azure Portal:

Overview of using the Azure DevOps portal and Azure Portal to manage Azure DevOps services and resources.



DevOps Certification Project

What are the system requirements for this DevOps course?

You don't have to worry about the system requirements as you will be executing your practicals on a Cloud LAB which is a pre-configured environment. This environment already contains all the necessary tools and services required for Eduleem's DevOps Training online.

How will I execute the practicals in this DevOps course?

You will execute all your DevOps Course Assignments/Case Studies in the Cloud LAB environment provided by Eduleem. You will be accessing the Cloud LAB via a browser. In case of any doubt, Eduleem's Support Team will be available 24*7 for prompt assistance.

Which case studies or projects are a part of this DevOps training course?

Project 1:

AppleBite Co. is using Cloud for one of their products. The project uses modular components, multiple frameworks and want the components to be developed by different teams or by 3rd-party vendors. The company's goal is to deliver the product updates frequently to production with High quality & Reliability. They also want to accelerate software delivery speed, quality and reduce feedback time between developers and testers. As development progressed, they are facing multiple problems, because of various technologies involved in the project.

Following are the problems:

- ♦ Building Complex builds is difficult
- ♦ Incremental builds are difficult to manage, and deploy

To solve these problems, they need to implement Continuous Integration & Continuous Deployment with DevOps using following tools:

- ♦ **Git:** For version control for tracking changes in the code files
- ♦ **Jenkins:** For continuous integration and continuous deployment
- ♦ **Docker:** For deploying containerized applications
- ♦ **Ansible:** Configuration management tool

Project 2:

A retail company Abstergo Corp. has recently setup an online shopping portal(website) to sell their products. Due to fierce competition, the company wants a solution that can reduce the time and effort it needs to enhance its website functionality on a regular basis. They are looking for an automated way to deploy the new code (for new features) to the production website whenever they want. Steps to follow:

- The team of developers working on new features will merge their code to a GitHub repo
- As soon as the code reaches GitHub, using a CI (Continuous Integration) pipeline, setup in Jenkins, an automated build will be triggered.
- The automated build will frequently deploy new features to the production website.
- Every build will prepare a Dockerfile and push docker images to docker-hub.
- Every docker image will be deployed (Continuous Deployment) to a kubernetes-cluster.

What is CloudLab?

CloudLab is a cloud-based DevOps environment that Eduleem offers with the DevOps Training Course where you can execute all the in-class demos and work on real-life DevOps case studies fluently. This will save you from the trouble of installing and maintaining DevOps tools on a virtual machine. You'll be able to access the DevOps Training CloudLab via your browser which requires minimal hardware configuration. In case, you get stuck in any step, our support team is ready to assist 24×7.



INDIA

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