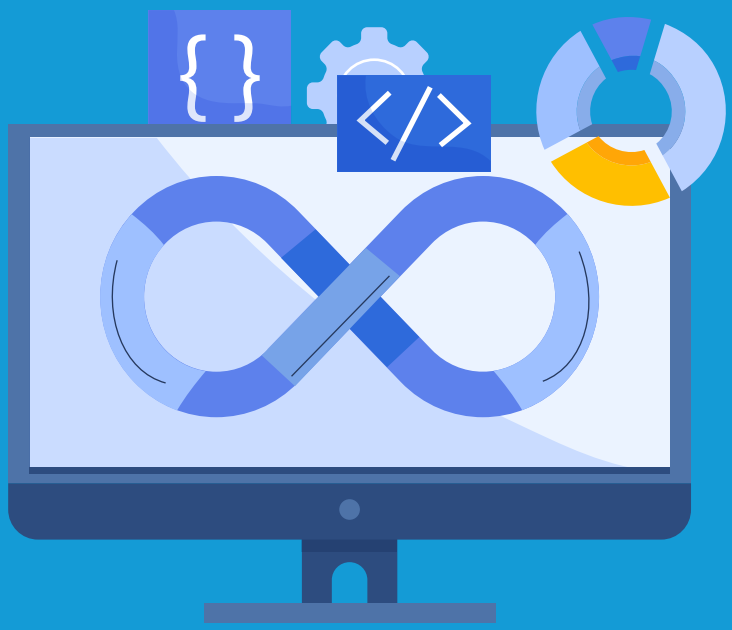
career connect

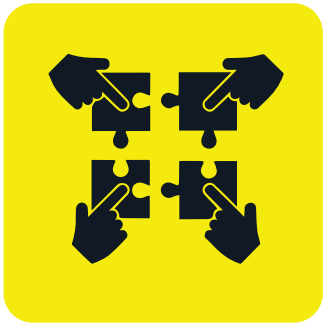


DevOps
Program

Learning Model

Tutor-led physical and virtual classes

Group based projects



Collaborative & interactive learning

Syllabus

WEEK 1: Introduction to DevOps

01.01. What is DevOps?

- Definition and key concepts
- Evolution of DevOps
- DevOps lifecycle overview
- The DevOps culture (collaboration between Dev & Ops)

01.02. DevOps Principles & Practices

- CI/CD (Continuous Integration/Continuous Deployment)
- Automation and monitoring
- Infrastructure as Code (IaC)
- Microservices and containers

01.03. DevOps Tools Overview

- Git, Docker, Jenkins, Kubernetes, Terraform, Ansible, AWS, etc.
- Understanding where each tool fits in the DevOps pipeline

WEEK 2: Version Control with Git & GitHub

02.01. Introduction to Version Control

- What is version control?
- Benefits of Git for collaboration

02.02. Git Fundamentals

- Installing Git
- Basic commands: init, add, commit, push, pull, clone
- Branching and merging

02.03. GitHub Workflow

- Creating and managing repositories
- Pull requests and issues
- Collaborating in teams (Git flow)

WEEK 3: Linux Fundamentals for DevOps

03.01. Introduction to Linux

- Understanding file systems
- Basic shell commands

03.02. Working with the Command Line

- File and directory management
- Permissions and ownership
- Bash scripting basics

03.03. System Administration

- Package management
- Networking basics
- Process management

WEEK 4: Scripting & Automation

04.01. Shell Scripting

- Variables, loops, conditionals
- Writing and executing scripts

04.02. Python for DevOps

- Using Python for automation
- Working with APIs and files

04.03. Task Automation Tools

- Cron jobs
- Automation in CI/CD pipelines

WEEK 5: Continuous Integration (CI) with Jenkins

05.01. Introduction to Continuous Integration

- Why CI matters
- Key CI principles

05.02. Jenkins Setup

- Installing Jenkins locally or on cloud
- Configuring build jobs

05.03. Pipelines

- Jenkins pipeline syntax
- Integrating GitHub with Jenkins
- Notifications and reports

WEEK 6: Containerization with Docker

06.01. Introduction to Containers

- What are containers?
- Docker vs Virtual Machines

06.02. Docker Basics

- Installing Docker
- Dockerfile, Images, and Containers
- Docker CLI commands

06.03. Container Management

- Docker Compose
- Networking and volumes
- Building and pushing images

WEEK 7: Orchestration with Kubernetes

07.01. Introduction to Kubernetes

- Containers vs Orchestration
- Kubernetes architecture

07.02. Core Concepts

- Pods, Deployments, Services
- Namespaces and ConfigMaps

07.03. Kubernetes in Action

- Setting up Minikube or Docker Desktop K8s
- Deploying applications on Kubernetes

WEEK 8: Infrastructure as Code (IaC)

08.01. What is IaC?

- Definition and benefits
- Configuration vs Provisioning

08.02. Terraform Basics

- Installing Terraform
- Writing Terraform configurations
- Deploying infrastructure to AWS

08.03. Configuration Management with Ansible

- Playbooks and roles
- Automating server setup

WEEK 9: Cloud Platforms (AWS / Azure / GCP)

09.01. Introduction to Cloud Computing

- Cloud service models (IaaS, PaaS, SaaS)
- Cloud providers overview

09.02. Working with AWS

- EC2, S3, IAM basics
- Deploying applications to AWS

09.03. Cloud Automation

- Using Terraform or Ansible with AWS

WEEK 10: Monitoring, Logging & Security

10.01. Monitoring Tools

- Prometheus, Grafana, ELK Stack
- Metrics and alerts

10.02. Logging and Debugging

- Log aggregation
- Error monitoring

10.03. DevOps Security (DevSecOps)

- Security best practices
- Secrets management and vulnerability scanning

WEEK 11: CI/CD Pipeline Project

11.01. Build a CI/CD Pipeline

- From code commit to deployment
- Integrate Git, Jenkins, Docker, Kubernetes, AWS

11.02. Team Collaboration

- Deploy a full application pipeline collaboratively

11.03. Documentation & Reporting

- Writing deployment reports
- Maintaining logs and dashboards

WEEK 12: Final Project, Portfolio & Career Prep

12.01. Capstone Project

- Build a complete DevOps pipeline project
- Deploy to a live cloud environment

12.02. Portfolio & Resume Building

- GitHub portfolio
- Writing technical case studies

12.03. Interview Preparation

- Common DevOps interview questions
- Practical problem-solving