DevOps Content Overview of Our Course

Module 1: Introduction to DevOps

♦ Definition and History of DevOps

♦ Benefits of DevOps

♦ DevOps Principles and Practices

♦ DevOps vs. Traditional IT

Module 2: DevOps Culture

♦ Building a DevOps Culture

♦ Collaboration and Communication

♦ Continuous Improvement

♦ DevOps Mindset and Philosophy

Module 3: Version Control Systems (VCS)

♦ Introduction to Version Control

♦ Git Basics

♦ • Installation and Configuration

♦ • Git Commands

♦ Branching Strategies

♦ Collaborative Workflows (GitHub, GitLab, Bitbucket)

Module 4: Continuous Integration (CI)

♦ Introduction to CI

♦ Setting Up CI Pipelines

♦ CI Tools

♦   • Jenkins

♦   • Travis CI

♦   • GitLab CI

♦ Automated Testing

♦ Code Quality and Code Coverage Tools

Module 5: Continuous Deployment and Delivery (CD)

♦ Introduction to CD

♦ Setting Up CD Pipelines

♦ Deployment Strategies

♦ • Blue-Green Deployment

♦ • Canary Releases

♦ • Rolling Updates

♦ CD Tools

♦ • Jenkins

♦ • ArgoCD

Module 6: Infrastructure as Code (IaC)

- ◆ Introduction to IaC
- ◆ IaC Tools
- ◆ CI Tools
- ◆ • Terraform
- ◆ • AWS CloudFormation
- ◆ • Azure Resource Manager
- ◆ Configuration Management Tools
- ◆ • Ansible
- ◆ • Puppet
- ◆ IaC Best Practices

Module 7: Containerization and Orchestration

- ◆ Introduction to Containers
- ◆ Docker
- ◆ • Docker Installation and Setup
- • Docker Commands
- • Creating and Managing Docker Images
- ◆ Container Orchestration
- • Kubernetes
- • Docker Swarm
- • OpenShift
- ◆ Kubernetes Components and Architecture
- ◆ Deploying Applications on Kubernetes

Module 8: Monitoring and Logging

- Importance of Monitoring and Logging
- Monitoring Tools
  - Prometheus
  - Grafana
  - Nagios
  - ELK Stack (Elasticsearch, Logstash, Kibana)
- Log Management and Analysis
- Alerting Systems

Module 9: Security in DevOps

- DevSecOps Principles
- Security Best Practices
- Security Tools
  - OWASP
  - Snyk
- Continuous Security Monitoring

Module 10: Cloud Providers and Service

- Introduction to Cloud Computing
- Major Cloud Providers
- Security Tools
  - Amazon Web Services (AWS)
  - Microsoft Azure
  - Google Cloud Platform (GCP)
- Cloud Services and Deployment Models
- Setting Up and Managing Cloud Infrastructure

Module 11: DevOps Automation

♦ Automating DevOps Processes

♦ Scripting and Automation Tools

- Shell Scripting
- Python
- Jenkins Pipelines

♦ Automated Testing Frameworks

♦ Alerting Systems

Module 12: DevOps Case Studies and Real-World Scenarios

♦ Case Studies of Successful DevOps Implementations

♦ Industry Use Cases

♦ Troubleshooting and Problem-Solving

Module 13: Soft Skills for DevOps

♦ Collaboration and Teamwork

♦ Effective Communication

♦ Problem-Solving and Critical Thinking

♦ Time Management and Prioritization

Module 14: Certification Preparation (Optional)

♦ DevOps Certification Overview

♦ Preparation Tips and Resources

♦ Practice Exams and Mock Tests