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# DevOps Full Course Curriculum

This curriculum is designed for beginners to advanced learners who want to become professional DevOps Engineers. It covers Linux, Networking, Cloud, CI/CD, Containers, Kubernetes, Infrastructure as Code, Monitoring, Security, and Real-World DevOps Projects.

## Module 1: Introduction to DevOps

- What is DevOps?
- DevOps Lifecycle
- DevOps Culture & Practices
- Agile & Scrum Basics
- Roles and Responsibilities of DevOps Engineer

## Module 2: Linux Fundamentals

- Linux Installation
- Linux File System
- Basic Linux Commands
- User & Group Management
- File Permissions
- Shell Scripting Basics

## Module 3: Networking Basics

- OSI & TCP/IP Models
- IP Addressing
- DNS, DHCP, HTTP, HTTPS
- Ports & Protocols
- Load Balancers & Reverse Proxy

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## Module 4: Version Control with Git & GitHub

- Git Installation
- Git Commands
- Branching & Merging
- Pull Requests
- GitHub Workflows

## Module 5: Continuous Integration

- Introduction to CI/CD
- Jenkins Installation
- Jenkins Pipelines
- Automated Builds
- Integration with GitHub

## Module 6: Containers with Docker

- What is Docker?
- Docker Architecture
- Docker Images & Containers
- Dockerfile
- Docker Compose
- Docker Registry

## Module 7: Container Orchestration with Kubernetes

- Kubernetes Architecture
- Pods, Deployments & Services
- ConfigMaps & Secrets
- Ingress Controller

- Helm Charts
- Kubernetes Scaling

## Module 8: Cloud Computing

- Introduction to AWS
- EC2, S3, IAM
- VPC & Networking
- RDS & Databases
- Cloud Security Basics

## Module 9: Infrastructure as Code

- Terraform Basics
- Terraform Providers
- Terraform State Management
- Ansible Basics
- Configuration Management

## Module 10: Monitoring & Logging

- Prometheus
- Grafana Dashboards
- ELK Stack
- Application Monitoring
- Alerting Systems

## Module 11: DevSecOps

- Security in DevOps
- Vulnerability Scanning

- Secrets Management
- Container Security
- Compliance Basics

## Module 12: Real-Time DevOps Projects

- CI/CD Pipeline Project
- Dockerized Application Deployment
- Kubernetes Production Setup
- AWS Infrastructure Deployment
- Monitoring & Logging Implementation

## Module 13: Interview Preparation

- Resume Building
- Git Interview Questions
- Docker & Kubernetes Interview Questions
- AWS & Terraform Interview Questions
- Mock Interviews

## Recommended Learning Timeline

| Phase | Duration |
|---|---|
| Linux & Networking | 2 Weeks |
| Git & Jenkins | 2 Weeks |
| Docker & Kubernetes | 4 Weeks |
| Cloud & Terraform | 3 Weeks |
| Monitoring & DevSecOps | 2 Weeks |
| Projects & Interview Preparation | 3 Weeks |

By completing this curriculum, learners will gain practical DevOps skills required for real-world software deployment, automation, cloud infrastructure management, and modern CI/CD practices.