

DevOps Mastery Roadmap

This roadmap is designed to help you master DevOps based on your college syllabus. Follow this guide to understand the key principles, tools, and practices in DevOps.

The roadmap is divided into different phases, with each phase focused on specific topics and tools. It includes both learning objectives and hands-on projects to ensure practical experience.

Here is the roadmap to becoming proficient in DevOps.

1. Foundational Understanding of DevOps

- Learn DevOps principles, culture, and lifecycle.
- Understand the importance of communication and collaboration.
- Study CI/CD, automation, and feedback loops in DevOps.

2. Version Control and Git

- Learn Git fundamentals: repositories, branches, commits, merges, conflicts.
- Study Git workflows: Feature branch workflow, GitFlow, and forking workflow.
- Practice Git regularly to manage projects and collaborate with others.

3. Continuous Integration (CI) and Continuous Deployment (CD)

- Learn CI/CD fundamentals and automation.
- Get hands-on experience with Jenkins for CI/CD pipelines.
- Implement GitLab CI as an alternative tool.

4. Containerization and Docker

- Study Docker fundamentals: containers, images, Dockerfile, volumes, networks.
- Learn Docker Compose for multi-container applications.

- Practice Dockerizing various applications.

5. Infrastructure as Code (IaC)

- Learn Terraform for provisioning and managing infrastructure.
- Study cloud-specific IaC tools like AWS CloudFormation.
- Practice using Ansible for configuration management and deployment automation.

6. Container Orchestration with Kubernetes

- Master Kubernetes: Pods, Nodes, Services, Deployments, Namespaces.
- Set up and manage Kubernetes clusters for scalable containerized apps.
- Learn Helm for managing Kubernetes packages.

7. Monitoring and Logging

- Implement Prometheus for monitoring and Grafana for visualization.
- Study ELK Stack (Elasticsearch, Logstash, Kibana) for logging.
- Set up centralized logging and monitoring for applications and infrastructure.

8. Security in DevOps (DevSecOps)

- Learn secure coding practices.
- Integrate security tools like SonarQube and Nexus into your CI/CD pipeline.
- Study secrets management tools like HashiCorp Vault.

9. Advanced Topics and Continuous Learning

- Explore microservices architecture and service mesh technologies like Istio.
- Learn about Chaos Engineering for system resilience.
- Keep up with advanced tools like GitOps and continuous testing.

10. Hands-On Projects and Portfolio Building

- Build hands-on projects including CI/CD pipelines, Dockerized apps, Kubernetes deployments, and more.

- Create a strong portfolio with projects that demonstrate your skills in DevOps tools and practices.

11. Prepare for Certifications and Interviews

- Earn certifications like Docker Certified Associate, Kubernetes Administrator, and more.
- Practice DevOps interview questions and work on explaining your projects.

Timeline for Mastery

Month 1-2: Version Control, CI/CD, Docker basics.

Month 3-4: Kubernetes, IaC (Terraform, Ansible), DevSecOps.

Month 5-6: Monitoring, Logging, Advanced topics.

Month 7-8: Microservices, Service Mesh, and Chaos Engineering.

Month 9-10: Finalizing portfolio, Certifications, Interview Prep.