



DevOps Engineer Roadmap (2025 Updated)



1. Fundamentals (Start Here)



Learn Linux (core foundation)

- File system
- Permissions
- Processes
- Systemd
- Networking
- SSH
- Package managers

Tools: Ubuntu, CentOS, WSL

Time: 2–3 weeks

Project: Host a web server on Linux (Nginx + Flask/Node).



2. Networking & OS Basics

Understand:

- TCP/IP
- DNS
- HTTP/HTTPS
- Load Balancers
- Firewalls & Ports
- Subnets / CIDR

Time: 1 week

Project: Build a small network map of your home/office using diagrams.



3. Scripting & Programming

Learn one scripting language well:

- **Python** (recommended)
or
- Bash

Learn:

- File handling
- APIs
- Cronjobs
- Automation scripts

Time: 3–4 weeks

Project: Automate log cleanup, backup scripts, or monitoring scripts.



4. Version Control (Must Know)

Git + GitHub/GitLab

Learn:

- Branching
- Merging
- PRs
- Tags
- Release workflow

Time: 3–5 days

Project: Manage your DevOps notes on GitHub.



5. Package managers & Build Tools

- apt, yum
- pip/npm/maven/gradle
- Virtual environments
- Build pipelines basics

Time: 3–5 days



6. CI/CD (Core of DevOps)

Start with **GitHub Actions** → move to **Jenkins**.

Learn:

- Build pipelines
- Testing automation
- Deploy to servers
- Artifact storages

Time: 3–4 weeks

Project:

- CI/CD pipeline that deploys a Flask or React app automatically to EC2.
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7. Containers (Very Important!)

Learn Docker:

- Images
- Containers
- Dockerfile
- Volumes
- Networking
- Multi-stage builds

Time: 2–3 weeks

Project: Containerize a full-stack app.



8. Container Orchestration (Kubernetes)

Learn:

- Pods
- Deployments
- ReplicaSets
- Services

- Ingress
- ConfigMaps
- Secrets
- Helm

Time: 1–2 months

Project:

Deploy a 3-tier app (frontend, backend, DB) on Kubernetes.



9. Cloud Platforms (AWS recommended)

Focus on:

- EC2
- S3
- RDS
- VPC
- IAM
- Lambda
- CloudWatch
- Elastic Beanstalk
- EKS (Kubernetes on AWS)

Time: 2 months

Project:

Build your own **microservices app** hosted entirely on AWS.



10. Infrastructure as Code (IaC)

Learn **Terraform** (priority) and optionally **CloudFormation**.

Learn:

- Providers
- Variables
- State management
- Modules

Time: 3–4 weeks

Project:

Create EC2, S3, RDS, VPC using Terraform.



11. Security & Monitoring

Learn:

- IAM rules
- RBAC
- Secrets management
- SSL/TLS
- Prometheus
- Grafana
- ELK stack
- CloudWatch logs

Time: 3–4 weeks

Project:

Set up monitoring + alerting for a small cluster.



12. DevOps Tools to Know (Minimal Set)

Category	Tools
Version Control	Git, GitHub
CI/CD	GitHub Actions, Jenkins
Containers	Docker
Orchestration	Kubernetes
Cloud	AWS
IaC	Terraform
Observability	Prometheus, Grafana
Config Management	Ansible



13. Build Real DevOps Projects (Portfolio Level)

Project 1: CI/CD Pipeline on AWS

- GitHub → Jenkins → EC2
- Automatic deployment

Project 2: Full Kubernetes Deployment

- 3-tier app
- Ingress controller
- Autoscaling

Project 3: Terraform Infrastructure

- Create VPC, EC2, RDS
- Outputs & variables

Project 4: Dockerized Microservices

- 3 microservices
- Docker Compose / K8s

Project 5: Monitoring Setup

- Prometheus + Grafana

These projects will get you an interview easily.