

DevOps Syllabus

Module-1

DevOps Fundamentals

SDLC lifecycle

Waterfall Model

Agile Model

DevOps

DevOps vs Traditional IT

Why and What is DevOps

Benefits & Lifecycle

Myths Of DevOps

DevOps Culture (Collaboration, Feedback Loops)

Agile, Scrum, and Lean basics

CALMS model (Culture, Automation, Lean, Measurement, Sharing)

Module-2

Linux & Shell Scripting

Linux Basics

Linux OS fundamentals (file system, permissions)

Basic commands

Shell scripting basics (variables, loops, conditions)

Package managers (apt, yum)

Module-3

Networking & Security Basics

Network layers (OSI/TCP/IP models)

TCP/IP, DNS, HTTP/HTTPS, Ports, FTP, SSH, ICMP

Firewalls, Load Balancing, Proxies, VPN

Subnetting, VPNs, NAT, CIDR, IP addressing, DHCP, routing

SSL/TLS, encryption, certificates

Security best practices for infrastructure and DevOps

Module-4

Version Control (Git)

Git basics: clone, commit, push, pull

Branching, Merging, Rebase

Resolving conflicts

Git workflows: Git Flow, Trunk-based, Fork-and-PR

Tags and releases

Module-5

Containerization (Docker)

What is Docker & why use it? Docker architecture (Engine, Daemon, Registry)

Images vs Containers

Dockerfile creation

Docker Compose

Volume, Networking, Healthchecks

Module-6

Container Orchestration (Kubernetes)

Kubernetes Architecture

Kubernetes components (Pod, Node, Cluster, etc.)

Deployments, ReplicaSets, Services, Statefulset

	ConfigMaps & Secrets RBAC (Role-Based Access Control) Volumes, Persistent Storage Helm basics Ingress Controller Monitoring with Prometheus/Grafana
Module-7	CI/CD Pipelines(Jenkins) Concepts: Continuous Integration, Continuous Delivery/Deployment Jenkins / GitHub Actions / Azure DevOps Build pipelines: triggers, stages, jobs Testing and deployment automation Slack/email notifications
Module-8	Infrastructure as Code (IaC)- Terraform and Terragrunt Providers, Resources, Variables, Outputs, Data, Statefile, tfvars, locals Modules, Remote State, Workspaces Why Terragrunt over Terraform Terragrunt file structure Ansible YAML basics Playbooks, Roles, Inventories
Module-9	AWS VPC, Subnets, EC2 instance, Load Balancer, NACL, Security Groups Elastic IP, Route Tables, RDS, IAM (users,roles,groups,inline policies, managed policies) CloudTrail, CloudWatch, EKS, CloudFront(Container Delivery Network=CDN),Auto Scaling DynamoDB, MongoDB Atlas, AWS Secret Manager
Module-10	Monitoring & Logging Prometheus & Grafana ELK Stack (Elasticsearch, Logstash, Kibana) Loki (for logs in Kubernetes) CloudWatch (AWS)
Module-11	Security in DevOps Secrets management (Vault, K8s secrets) Docker/Kubernetes security best practices IAM roles and policies SonarQube, Trivy, Veracode CI/CD pipeline security
Module-12	Artifact Repository & Package Management Versioning strategies DockerHub, ECR, Harbor
Module-13	Live Project with Best Practices Project from scratch

Module-14**Project Exercises and Interview Preparation**

End-to-end Project revision.

Interview Preparations

Module-15**Moc-Interviews**