



DevOps & Site Reliability Engineering

Module 1: Introduction to DevOps and SRE

DevOps is a cultural and technical movement that unifies development and operations teams to improve software delivery. Site Reliability Engineering (SRE), pioneered by Google, applies software engineering principles to operations, focusing on system reliability and uptime. While DevOps promotes collaboration, SRE emphasizes scalability, availability, and service quality.

Module 2: Version Control with Git

Git is a distributed version control system that enables efficient tracking of code changes. It supports features like branching, merging, and version history. Platforms like GitHub and GitLab enhance collaboration, allowing multiple developers to work on the same project seamlessly.

Module 3: Continuous Integration (CI)

CI automates the building and testing of code whenever changes are committed. Tools like Jenkins, GitHub Actions, and GitLab CI detect bugs early in the development process, ensuring higher code quality and faster development cycles.

Module 4: Continuous Deployment and Delivery (CD)

CD automates the release of software into production after successful testing. Deployment strategies such as blue-green deployments and canary releases minimize downtime and risk. This module focuses on building robust, automated release pipelines.

Module 5: Infrastructure as Code (IaC)

IaC uses code to manage and provision infrastructure. Tools like Terraform, Ansible, and CloudFormation allow for consistent, repeatable, and version-controlled infrastructure deployments. This reduces manual errors and supports scalability.

Module 6: Containerization with Docker

Docker enables developers to package applications and their dependencies into containers. These containers are lightweight, portable, and consistent across environments, making development and deployment faster and more reliable.

Module 7: Container Orchestration with Kubernetes

Kubernetes automates the deployment, scaling, and operation of containerized applications. It ensures load balancing, fault tolerance, and zero-downtime deployments. This module teaches how to manage microservices at scale using Kubernetes.

Module 8: Monitoring and Logging

Monitoring and logging provide visibility into system performance and health. Tools like Prometheus and Grafana track key metrics, while ELK Stack and Fluentd manage logs. This module covers setting up observability for effective incident detection and response.

Module 9: Cloud Platforms and Services

Cloud platforms such as AWS, Azure, and Google Cloud offer scalable compute, storage, and networking services. This module explores how DevOps teams leverage cloud-native tools for automation, scalability, and cost-efficiency.

Module 10: Site Reliability Engineering (SRE) Practices

SRE introduces measurable reliability practices including SLIs (Service Level Indicators), SLOs (Service Level Objectives), and SLAs (Service Level Agreements). Concepts like error budgets, automation, incident management, and blameless postmortems are covered in this module.

Module 11: Security and DevSecOps

DevSecOps embeds security into every stage of the DevOps lifecycle. Topics include secure coding, vulnerability scanning, secrets management, and automated compliance checks. The goal is to release secure software without slowing down delivery.

Module 12: Soft Skills and DevOps Culture

DevOps success depends on strong communication, collaboration, and a culture of shared responsibility. This module emphasizes Agile and Lean principles, feedback loops, continuous improvement, and building trust between teams for faster innovation.

Career Scope of Learning DevOps and SRE

DevOps and Site Reliability Engineering (SRE) have become critical in modern software development and IT operations. With companies prioritizing speed, automation, and reliability in software delivery, professionals skilled in DevOps and SRE practices are in high demand globally.

After completing this course, learners can pursue roles such as:

- **DevOps Engineer**
- **Site Reliability Engineer (SRE)**

- **Cloud Engineer**
- **Infrastructure Engineer**
- **CI/CD Engineer**
- **Platform Engineer**
- **Automation Engineer**
- **Release Engineer**

These roles exist across tech companies, cloud service providers, fintech, healthcare, e-commerce, and enterprise IT teams. The skills also open up opportunities in system architecture, cloud security, and infrastructure automation.

With the adoption of cloud-native technologies, microservices, and containerized environments, DevOps and SRE professionals are at the center of digital transformation initiatives.

Salary Package After Learning DevOps and SRE

Salary varies by experience, domain, and certification, but remains among the highest in the IT sector:

- **Entry-Level (0–2 years):** ₹5 to ₹9 LPA
(Junior DevOps Engineer, Cloud Support Associate)
- **Mid-Level (3–6 years):** ₹10 to ₹18 LPA
(DevOps Engineer, SRE, Cloud Automation Specialist)
- **Senior-Level (7+ years):** ₹20 to ₹40+ LPA
(Senior SRE, DevOps Architect, Platform Engineering Lead)

In international markets like the US, UK, and Germany, salaries range from **\$100,000 to \$180,000+**, reflecting the strategic importance of these roles.