



Information Technology

## Infrastructure as Code with Terraform

# Course Introduction

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## Infrastructure as Code with Terraform

Welcome to "Infrastructure as Code with Terraform," a **five-day** course designed to equip professionals with the skills needed to manage cloud infrastructure using Terraform on AWS. As organizations increasingly adopt cloud-native technologies, managing infrastructure through code has become essential for scalability, consistency, and efficiency. This course dives deep into Terraform's integration with AWS services, enabling you to design and deploy infrastructure that aligns with AWS best practices.

Through hands-on labs and real-world scenarios, you will explore advanced topics such as AWS-specific modules, state management, and cost optimization. You will also learn how to integrate Terraform with AWS CloudFormation and CI/CD pipelines, ensuring seamless collaboration between development and operations teams. The course emphasizes practical application, enabling you to design scalable, secure, and maintainable infrastructure that meets AWS standards.

By the end of this course, you will have the expertise to manage AWS infrastructure as code effectively, fostering a culture of automation, collaboration, and continuous improvement. Whether you are a DevOps engineer, cloud architect, or system administrator, this course provides the knowledge and skills necessary to excel in IaC implementation and optimization. With Terraform and AWS as your foundation, you will be prepared to tackle complex challenges in cloud infrastructure management.

## Target Audience

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This course is ideal for DevOps engineers, cloud architects, and system administrators involved in AWS infrastructure management. It is particularly beneficial for professionals looking to deepen their Terraform expertise or those preparing for roles in AWS cloud infrastructure automation.

# Learning Objectives

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- Understand the principles of infrastructure as code (IaC) and its role in AWS environments.
- Design and deploy AWS infrastructure using Terraform modules and configurations.
- Manage Terraform state files and implement remote state storage on AWS.
- Integrate Terraform with AWS CloudFormation and CI/CD pipelines.
- Optimize AWS infrastructure for cost and performance.

## Course Outline

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### • Day 01

#### **Foundations of Terraform on AWS**

##### **Introduction to Infrastructure as Code (IaC)**

- Definition and importance of IaC in AWS environments.
- Benefits of implementing IaC with Terraform on AWS.
- Overview of Terraform's architecture and AWS integration.

##### **Setting Up Terraform on AWS**

- Installing Terraform and configuring AWS CLI.
- Connecting Terraform to AWS accounts using IAM roles.

##### **Interactive Session**

- Hands-on exercise: Write and apply a basic Terraform configuration for AWS.

### • Day 02

#### **Building AWS Infrastructure with Terraform**

##### **Understanding Terraform Syntax for AWS**

- Writing and debugging Terraform configurations for AWS services.
- Using AWS provider and resource blocks.

## **Managing AWS Resources**

- Creating and managing EC2 instances, S3 buckets, and RDS databases.
- Using variables and outputs for dynamic configurations.

## **Practical Exercise**

- Deploy an EC2 instance and S3 bucket using Terraform.

## **• Day 03**

### **Modular Design and State Management**

#### **Modular Design for AWS**

- Creating reusable Terraform modules for AWS services.
- Organizing configurations for scalability.

#### **State Management on AWS**

- Understanding Terraform state files and their importance.
- Implementing remote state storage using AWS S3.

## **Role Play**

- Build a modular Terraform configuration and manage state files on AWS.

## **• Day 04**

### **Integrating Terraform with AWS Services**

#### **Automating Infrastructure Provisioning**

- Integrating Terraform with AWS CloudFormation.
- Automating resource creation and destruction.

#### **Multi-Region Deployments**

- Deploying infrastructure across multiple AWS regions.
- Managing region-specific configurations.

## **Group Activity**

- Automate infrastructure provisioning using Terraform and AWS CloudFormation.

## **• Day 05**

### **Advanced Topics and Best Practices**

#### **Securing Terraform on AWS**

- Protecting sensitive data with AWS Secrets Manager.
- Enforcing access controls for Terraform configurations.

Scaling Terraform

- Optimizing performance with parallel execution.
- Handling large-scale infrastructure deployments on AWS.

Best Practices and Real-World Examples

- Reviewing best practices for Terraform usage on AWS.
- Discussing real-world case studies and success stories.

Final Project Presentation: Comprehensive Terraform Deployment on AWS

- Closing Remarks

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 4, 2025	May 8, 2025	5 days	4250.00 \$	KSA - Riyadh
Aug. 18, 2025	Aug. 22, 2025	5 days	2150.00 \$	Virtual - Online
Nov. 17, 2025	Nov. 21, 2025	5 days	4250.00 \$	UAE - Dubai