

### **Module1: Introduction to Terraform**

- Overview of Infrastructure as Code (IaC)
- What is Terraform?
- Terraform vs. Other IaC Tools
- Installing and Setting Up Terraform
- First Terraform Configuration
- Basic Terraform Commands

### **Module 2: Terraform Basics**

- Providers, Resources, and Modules
- Variables and Outputs
- State Management
  - Local vs. Remote State
  - State Locking
- Terraform Lifecycle: Init, Plan, Apply, Destroy
- **Debugging and Troubleshooting Terraform Configurations**

### **Module 3: Managing Infrastructure with Terraform**

- Creating and Managing Resources (AWS, Azure, GCP, etc.)
- Resource Dependencies
- Terraform Data Sources
- Using Terraform Modules
- Organizing Terraform Configurations

### **Module 4: Advanced Terraform Topics**

- Terraform Workspaces
- Advanced State Management
- Using Provisioners
- Terraform Import
- Handling Sensitive Data
  - Secrets Management
  - Terraform Vault Integration

## **Module 5: Infrastructure Design Patterns with Terraform**

- Environment Segregation
- Multi-Cloud Management
- Infrastructure as Code Best Practices
- Reusability with Terraform Modules
- CI/CD Integration with Terraform
- Automated Testing with Terraform

## **Module 6: Security and Compliance in Terraform**

- IAM Policies and Roles
- Securing Terraform State
- Compliance as Code
- Monitoring and Auditing Terraform Deployments
- Security Best Practices

## **Module 7: Working with Terraform Cloud and Enterprise**

- Introduction to Terraform Cloud
- Setting Up Terraform Cloud
- Workspaces and Remote Execution
- Collaboration with Terraform Cloud
- Sentinel Policy as Code
- Cost Estimation

## **Module 8: Terraform in Production**

- Terraform for Large-Scale Infrastructure
- Managing Infrastructure Drift
- Rolling Back Changes
- Blue-Green and Canary Deployments with Terraform
- Disaster Recovery with Terraform