Terraform

Zetlan Technologies

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COURSE MODULES

Module 1: Introduction to Terraform

- *What is Infrastructure as Code (IaC)?*
- *Introduction to Terraform and its benefits*
- *Terraform vs. other IaC tools (CloudFormation, Ansible, etc.)*
- *Installing Terraform and setting up the environment*
- *Understanding the Terraform workflow*

Module 2: Terraform Basics

- *Terraform configuration files (.tf, .tfstate, .tfvars)*
- *Terraform commands: init, plan, apply, destroy*
- *Understanding providers and modules*
- *Managing Terraform state files*

Module 3: Terraform Configuration & Resources

- *Writing and organizing Terraform configuration files*
- *Defining resources and providers*
- *Using input variables and output values*
- *Working with data sources*
- *Managing dependencies between resources*

Module 4: Terraform State Management

- *Understanding Terraform state and state locking*
- *Storing Terraform state remotely (AWS S3, Azure Storage)*
- *Terraform state security best practices*
- *Terraform workspaces for environment separation*

Module 5: Terraform Modules

- What are Terraform modules?
- Creating reusable Terraform modules
- Using community modules from Terraform Registry
- Structuring Terraform projects for scalability

Module 6: Terraform Provisioners

- Understanding provisioners (local-exec, remote-exec)
- Configuring provisioners for automation
- Best practices for using provisioners

Module 7: Terraform on AWS (Hands-On Project)

- Setting up AWS provider and authentication
- Deploying EC2 instances, VPC, and S3 using Terraform
- Configuring security groups and IAM roles
- Using Terraform to manage AWS Lambda and RDS

Module 8: Terraform on Azure & GCP (Optional)

- Setting up Terraform for Azure and GCP
- Deploying virtual machines, storage, and networking
- Managing IAM roles and policies

Module 9: Terraform Backend & Remote State

- Configuring remote backends (S3, GCS, Azure Storage)
- Working with Terraform Cloud and Enterprise
- State file locking and collaboration strategies

Module 10: Terraform Best Practices

- Writing DRY (Don't Repeat Yourself) Terraform code
- Using linting tools (tflint, terraform fmt)
- Managing sensitive data with HashiCorp Vault & AWS Secrets Mangr
- Security best practices and compliance

Module 11: Terraform CI/CD & Automation

- Integrating Terraform with GitHub Actions / GitLab CI / Jenkins
- Implementing Infrastructure as Code in a DevOps pipeline
- Automating Terraform deployments

Module 12: Advanced Terraform Features

- Working with Terraform Dynamic Blocks
- Handling complex dependencies and loops
- Using Terraform Functions
- Debugging and troubleshooting Terraform issues

Module 13: Terraform Certification Preparation (Optional)

- Overview of Terraform Associate Certification Exam
- Practice questions and mock tests
- Exam tips and study resources