

## Terraform with Azure

**Duration:** 3 Days

**Hands-On Format:** This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

### Module 1 - Getting Started & Setting Up Labs

Choosing a right Infrastructure as Code tool  
Terraform Overview  
Installing Terraform - Windows Users  
Installing Terraform - MacOS and Linux Users  
Choosing Right IDE for Terraform IAC development  
Setting up Azure Account  
Terraform init, plan and apply

### Module 2 – Building Cloud Infrastructure with Terraform

Introduction to Terraform with Azure  
Azure Resource Manager  
Azure Virtual Networks  
Authentication with Azure and Create a Resource Group  
Azure Virtual Network  
Azure VMs  
Azure Storage  
Security Groups  
Load Balancers  
Understanding Terraform State files  
Understanding Desired & Current States  
Terraform Provider Versioning  
Types of Terraform Providers  
Create template for azure web app  
Deploy storage account, container and blob

### Module 3 - Read, Generate, Modify Configurations

Understanding Attributes and Output Values in Terraform  
Referencing Cross-Account Resource Attributes  
Terraform Variables  
Approaches for Variable Assignment  
Data Types for Variables  
Fetching Data from Maps and List in Variable  
Count and Count Index  
Conditional Expressions  
Local Values  
Terraform Functions  
Data Sources  
Debugging in Terraform  
Terraform Format

- Validating Terraform Configuration Files
- Load Order & Semantics
- Dynamic Blocks
- Tainting Resources
- Splat Expressions
- Terraform Graph
- Saving Terraform Plan to File

#### **Module 4 - Terraform Provisioners**

- Understanding Provisioners in Terraform
- Types of Provisioners
- Implementing remote-exec provisioners
- Implementing local-exec provisioners

#### **Module 5 - Terraform Modules & Workspaces**

- Understanding DRY principle
- Variables and Terraform Modules
- Terraform Registry
- Terraform Workspace
- Implementing Terraform Workspace

#### **Module 6 - Remote State Management**

- Integrating with GIT for team management
- Security Challenges in Committing TFState to GIT
- Remote State Management with Terraform
- Terraform State Management
- Importing Existing Resources with Terraform Import