Azure Cloud Engineering Course

2-Month Program Outline

Objective

Transform learners into **Azure Cloud Engineers** capable of:

- Deploying applications on cloud
- Managing infrastructure & networking
- Building serverless and data solutions
- Implementing DevOps pipelines

Program Duration

8 Weeks (2 Months)

Structure

- **2 Days** → Learning
- **2 Days** → Hands-on Labs
- **1 Day** → Demo + Knowledge Sharing

PHASE 1: Azure Fundamentals (Week 1)

Topics

- What is Cloud Computing
- Azure global infrastructure
- Resource Groups
- Identity & Access Management

Services & Labs

- **Services:** Microsoft Azure, Azure Portal
- **Hands-on:** Create Azure account, Setup resource group, Configure users & roles

Outcome: Understand Azure basics and manage cloud resources.

PHASE 2: Compute + Storage (Week 2–3)

Topics

- Virtual Machines (VMs)
- App Services (PaaS)
- Blob Storage
- Storage accounts

Services & Labs

- **Services:** Azure Virtual Machines, Azure Blob Storage
- **Hands-on:** Deploy VM, Host backend app, Upload & manage files in Blob Storage, Host static site

Outcome: Run apps on Azure and manage storage systems.

PHASE 3: Networking (Week 4)

Topics

- Virtual Network (VNet)
- Subnets
- Load Balancer
- Network Security Groups

Services & Labs

- **Services:** Azure Virtual Network, Azure Load Balancer
- **Hands-on:** Create VNet, Configure subnets, Secure network with NSG, Setup load balancing

Outcome: Design secure cloud networks.

PHASE 4: Database Services (Week 5)

Topics

- Azure SQL Database
- Cosmos DB basics
- Data storage strategies

Services & Labs

- **Services:** Azure SQL Database, Azure Cosmos DB
- **Hands-on:** Create SQL database, Connect backend app, Perform CRUD operations

Outcome: Manage cloud databases and integrate apps with DB.

PHASE 5: Serverless + APIs (Week 6)

Topics

- Serverless architecture
- Azure Functions
- API Management
- Event-driven apps

Services & Labs

- **Services:** Azure Functions, Azure API Management
- **Hands-on:** Build serverless function, Create API endpoints, Connect APIs to backend

Outcome: Build scalable serverless systems.

PHASE 6: DevOps + CI/CD (Week 7)

Topics

- CI/CD pipelines
- Azure DevOps
- GitHub Actions
- Docker basics

Services & Labs

- **Services:** Azure DevOps
- **Hands-on:** Setup CI/CD pipeline, Auto deploy app, Containerize application

Outcome: Automate deployment pipelines.

PHASE 7: Monitoring + Scaling (Week 8)

Topics

- Azure Monitor
- Application Insights
- Auto scaling
- Cost optimization

Services & Labs

- **Services:** Azure Monitor, Application Insights
- **Hands-on:** Setup monitoring dashboard, Track performance metrics, Optimize cost

Outcome: Manage production systems.

FINAL PROJECT (End of Course)

Choose ONE of the following options to build end-to-end:

1. **Full Stack Deployment**: Backend on VM/App Service, DB on Azure SQL, Storage on Blob
2. **Serverless Application**: Azure Functions, API Management, Cosmos DB
3. **Scalable Enterprise App**: Load balancer, Auto scaling, Monitoring

Recommended Tech Stack

- **Cloud**: Microsoft Azure
- **Backend**: Java / Python / Node.js
- **Database**: Azure SQL / Cosmos DB
- **DevOps**: Docker, CI/CD pipelines

High-Value POC Categorization

- **Beginner**: VM deployment, Static hosting
- **Intermediate**: DB integration, Serverless APIs
- **Advanced**: Scalable architecture, CI/CD pipelines

Weekly Execution Plan

Day	Activity
Monday	Learning
Tuesday	Learning
Wednesday	Hands-on Labs
Thursday	Hands-on Labs
Friday	Demo / Knowledge Sharing

Team Setup & Role Rotation

- Cloud Engineer
- DevOps Engineer
- Backend Integrator
- Monitoring Specialist

Evaluation Metrics

✓ Deployment success

✓ Architecture design

✓ Security & monitoring

✓ Cost optimization

Outcome After 2 Months

- Deploy applications on Azure
- Build serverless systems
- Implement DevOps pipelines
- Design scalable cloud architecture

How This Fits Your Full Learning Stack

From your previous roadmaps:

→ **Frontend** → UI

→ **Backend** → Java/Python

→ **Cloud** → AWS / Azure

→ **Data** → Databricks

Final Result: **Full Stack + Cloud + Data + AI Engineer**