

# NS3EDU – Cloud Engineering Curriculum

Industry-Oriented | Job-Focused | Hands-On Training

## **LEVEL 1: Cloud Fundamentals** **(Beginner Level)**

### **Part 1: Cloud Computing Basics**

- What is Cloud Computing - Traditional IT vs Cloud - Cloud Service Models (IaaS, PaaS, SaaS) - Cloud Deployment Models (Public, Private, Hybrid, Multi-Cloud) - Benefits & Use Cases of Cloud

### **Part 2: Cloud Architecture Fundamentals**

- Regions, Availability Zones & Edge Locations - High Availability & Fault Tolerance - Scalability & Elasticity - Shared Responsibility Model

### **Part 3: Networking in Cloud**

- Virtual Private Cloud (VPC/VNet) - Subnets (Public & Private) - Route Tables - Internet Gateway & NAT Gateway - Security Groups & Network ACLs

### **Part 4: Compute Services**

- Virtual Machines (EC2 / VM / Compute Engine) - Instance Types & Sizing - Auto Scaling Concepts - Load Balancers

### **Part 5: Storage Services**

- Object Storage (S3 / Blob Storage) - Block Storage (EBS / Disk) - File Storage (EFS / File Share) - Storage Classes & Lifecycle Policies - Backup & Snapshots

### **Part 6: Identity & Access Management (IAM)**

- Users, Groups & Roles - Policies & Permissions - MFA & Security Best Practices - IAM in Real-World Scenarios

## **LEVEL 2: Cloud Engineer** **(Intermediate Level)**

### **Part 7: Cloud Security**

- Cloud Security Fundamentals - Encryption (At Rest & In Transit) - Key Management Services - Cloud Firewall & WAF - Compliance Basics

### **Part 8: Databases in Cloud**

- Managed Databases (RDS / SQL / Cloud SQL) - NoSQL Databases - Backup & Replication - High Availability Databases.

### **Part 9: Monitoring & Logging**

- Cloud Monitoring Services - Metrics & Alerts - Logs & Log Analysis - Cost Monitoring & Optimization

### **Part 10: DevOps & Automation Basics**

- Introduction to DevOps - CI/CD Basics - Infrastructure as Code (Intro) - Terraform Basics - Cloud Automation Concepts

### **Part 11: Container & Cloud Integration**

- Docker Basics - Containers in Cloud - Kubernetes Overview - Managed Kubernetes Services (EKS / AKS / GKE)

## **LEVEL 3: Advanced Cloud Engineering** **(Professional Level)**

## **Part 12: Advanced Cloud Architecture**

- Multi-Tier Architecture - Microservices Architecture - Serverless Architecture - Event-Driven Applications

## **Part 13: Serverless Computing**

- Serverless Concepts - Cloud Functions / Lambda - API Gateway - Event Triggers

## **Part 14: Disaster Recovery & Business Continuity**

- Backup Strategies - DR Planning - Multi-Region Deployment - High Availability Design

## **Part 15: Real-World Cloud Projects**

- Website Hosting on Cloud - Scalable Web Application - Secure Cloud Network Setup - Cloud Migration Project - Cost Optimization Project

## **Part 16: Career & Certification Preparation**

- Cloud Engineer Roles & Responsibilities - AWS / Azure / GCP Certification Overview - Interview Questions & Scenarios - Resume & Project Guidance

# Tools & Technologies Covered

- AWS / Azure / GCP -
- Terraform - Docker -
- Kubernetes - Git & GitHub
- Monitoring Tools

Outcome: Learners become job-ready Cloud Engineers, capable of designing, deploying, securing, and managing cloud infrastructure with real-world experience.



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