

Cloud Computing

A Complete 4-Month Industry-Ready Course

Designed for early professionals, graduate students, and career transitioners ready to build real-world cloud skills from the ground up.



12 WEEKS + 3-WEEK CAPSTONE



BEGINNER TO JOB-READY



AWS · AZURE · GCP

Why This Course Matters

Cloud Is the Backbone of Modern Industry

Every major enterprise — from startups to Fortune 500 companies — has moved or is actively moving its infrastructure to the cloud. This isn't a trend. It's the new standard. Understanding cloud computing is no longer optional for anyone entering the technology workforce.

Market Demand

Cloud job postings have grown over 300% in the last 5 years. Cloud roles are among the fastest-growing in tech globally.

Salary Premium

Cloud-certified professionals earn 20–40% more than non-certified peers in equivalent roles.

Universal Applicability

Finance, healthcare, retail, government — every sector now runs on cloud infrastructure and requires cloud-savvy talent.

Course Format & Structure

Weekly Learning Rhythm

Each week follows a consistent two-session structure designed to balance self-paced learning with live interaction:

- **Weekend Recorded Session** — Concept-focused video lecture, walkthroughs, and demonstrations (2–3 hours)
- **Weekend Live Session** — 1:1 or small-group mentoring for doubt-clearing, case discussions, and personalized feedback (1 hour)
- **Async Exercises** — Hands-on labs, quizzes, and reading assignments between sessions

Program Breakdown

Weeks 1–4

Foundation Phase —
Core concepts, cloud
models, and essential
services

Weeks 5–8

Intermediate Phase —
Architecture, security,
DevOps, and databases

Weeks 9–12

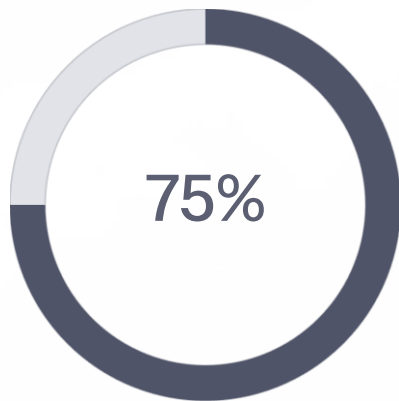
Advanced & Application
Phase — Cost
optimization, AI/ML, and
real-world deployment

Weeks 13–15

Capstone Project —
End-to-end cloud
solution design and
presentation

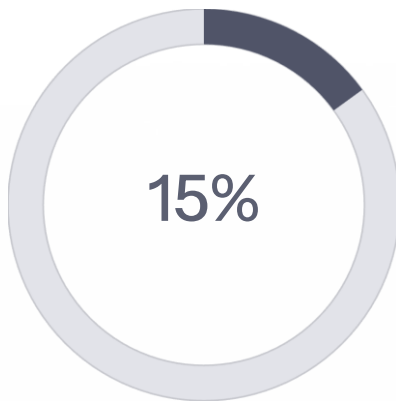
What You'll Learn — and How

This course is designed with a deliberate balance: strong fundamentals that make you confident in interviews and on the job, layered with real industry application that makes you effective from day one.



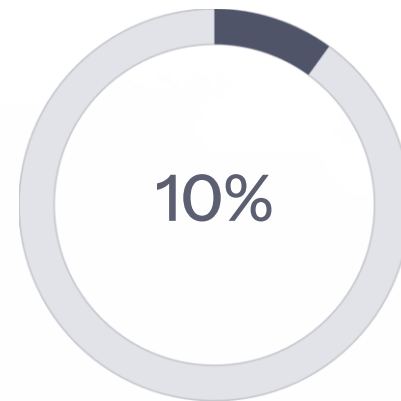
Core Concepts

Cloud fundamentals, architecture patterns, key services, and infrastructure essentials



Industry Use Cases

Real-world scenarios across healthcare, fintech, retail, and enterprise IT

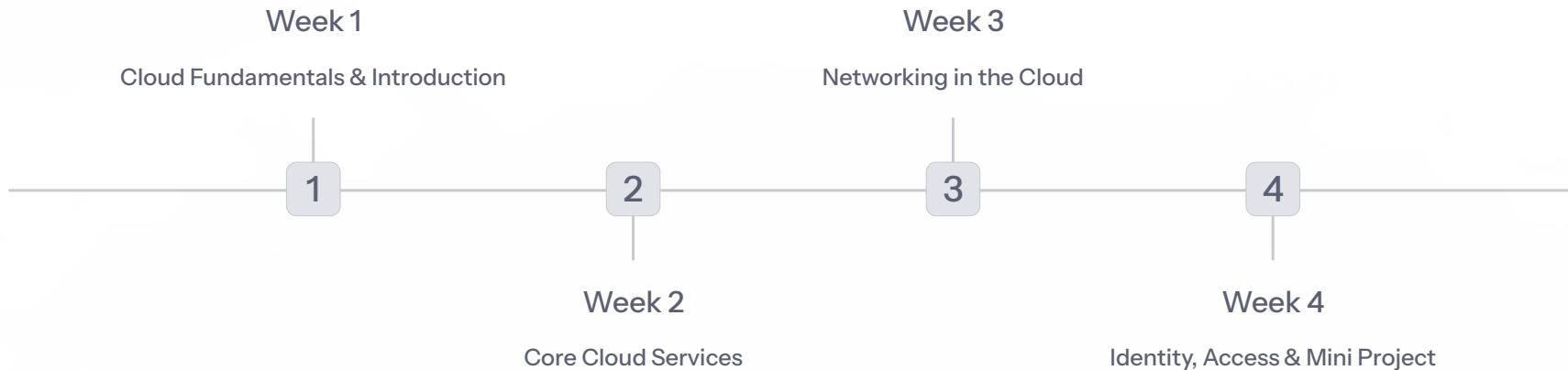


Tools & Workflows

Hands-on practice with AWS, Azure, GCP, Terraform, Docker, and CI/CD pipelines

Foundation Phase — Weeks 1–4

Build a rock-solid understanding of what cloud computing is, how it works, and why it matters. By the end of this phase, you'll be able to explain cloud concepts confidently and navigate the major platforms.



 Each week includes a recorded concept session, a live mentoring session, hands-on labs, and a weekly assignment to reinforce learning.

Cloud Fundamentals & Introduction

Ignite your growth, inspire your mind

Weekly Learning Outcome: Understand what cloud computing is, differentiate between service and deployment models, and successfully create your first cloud account with a basic resource.

1

What Is Cloud Computing?

Definition, history, and why businesses moved from on-premises to cloud

2

Service Models

IaaS, PaaS, SaaS — real-world analogies and use cases for each

3

Deployment Models

Public, Private, Hybrid, and Multi-Cloud — when to use which

4

Major Cloud Providers

Overview of AWS, Microsoft Azure, and Google Cloud Platform

5

Cloud Economics

CapEx vs. OpEx, pay-as-you-go pricing, and total cost of ownership

6

Lab: Setup & Explore

Create a free-tier AWS account, explore the console, and launch a basic EC2 instance

Core Cloud Services

Weekly Learning Outcome: Identify and use the foundational building blocks of any cloud environment — compute, storage, and content delivery — across at least one major provider.

1 Compute Services

Virtual machines (EC2/Azure VM), auto-scaling groups, and instance types

2 Storage Services

Object storage (S3, Blob Storage), block storage (EBS), and file storage options

3 Serverless Computing

AWS Lambda and Azure Functions — event-driven architecture basics

1 Content Delivery Networks

CDN concepts using CloudFront and Azure CDN for global performance

2 Managed vs. Unmanaged Services

When to use managed services and the trade-offs in control vs. convenience

3 Lab: Deploy a Static Website

Host a static website on S3 with CloudFront distribution enabled

Networking in the Cloud

Weekly Learning Outcome: Design a basic Virtual Private Cloud (VPC), configure subnets, security groups, and understand how cloud networking isolates and protects workloads.



Virtual Private Cloud (VPC)

Create isolated network environments: subnets, route tables, and internet gateways



Security Groups & NACLs

Controlling inbound/outbound traffic at the instance and subnet level



DNS & Load Balancing

Route 53, Azure DNS, and Application Load Balancer for high availability



VPN & Direct Connect

Hybrid connectivity options: Site-to-Site VPN, AWS Direct Connect, and ExpressRoute



Network Architecture Patterns

3-tier web application network layout — a pattern used across 80% of enterprise deployments



Lab: Build a VPC

Design and deploy a custom VPC with public/private subnets and NAT gateway

Identity, Access Management & Phase 1 Project

Weekly Learning Outcome: Configure IAM policies and roles to enforce least-privilege access, and complete your first mini-project deploying a fully functional, secured static web application.

Topics Covered

- **IAM Users, Groups & Roles** — Structuring access control in a real organization
- **Policies & Permissions** — JSON policy documents, managed vs. inline policies
- **Multi-Factor Authentication** — Enforcing MFA for root and privileged accounts
- **Service Accounts & Federation** — Cross-account access and SSO basics
- **Audit & Compliance Basics** — AWS CloudTrail and Azure Monitor for access logging
- **Security Best Practices** — Least privilege principle, password policies, key rotation

Mini Project 1

Secure Static Web App Deployment

Deploy a multi-page static website with the following requirements:

- Hosted on S3 with versioning enabled
- Delivered via CloudFront with HTTPS
- IAM roles with least-privilege access
- MFA enforced on all accounts
- CloudTrail logging enabled and reviewed

✓ **Expected Outcome:** A production-ready static web deployment following security best practices.

Intermediate Phase — Weeks 5–8

Build on your foundation with more sophisticated skills: cloud architecture patterns, database services, containers, DevOps automation, and cloud security. This phase prepares you for real team environments.



Week 5

Cloud Architecture & Design Patterns



Week 6

Databases & Data Management



Week 7

Containers & Kubernetes



Week 8

DevOps, CI/CD & Security

Cloud Architecture & Design Patterns

Weekly Learning Outcome: Apply the AWS Well-Architected Framework to evaluate architecture decisions and design a scalable, fault-tolerant multi-tier application blueprint.

Well-Architected Framework

Six pillars: Operational Excellence, Security, Reliability, Performance, Cost Optimization, Sustainability

High Availability Patterns

Multi-AZ deployments, failover strategies, and active-active vs. active-passive configurations

Scalability Patterns

Horizontal vs. vertical scaling, auto-scaling policies, and elastic load balancing

Microservices vs. Monolith

When to decouple, event-driven architectures using SNS/SQS, and API Gateway

Disaster Recovery

RTO/RPO concepts, backup strategies, and DR tiers (Backup → Pilot Light → Warm Standby → Multi-Site)

Lab: Architecture Diagram

Use AWS Architecture Center tools to design a 3-tier web application with HA and DR requirements

Databases & Data Management in the Cloud

Weekly Learning Outcome: Select the appropriate cloud database service for different use cases and deploy a fully managed relational database with automated backups and read replicas.

Relational Databases

Amazon RDS, Azure SQL Database — multi-AZ, read replicas, automated backups

Data Warehousing

Amazon Redshift and Azure Synapse for analytical workloads at scale

NoSQL Databases

DynamoDB and Cosmos DB — key-value, document, and wide-column patterns

Data Lakes & S3

Building a data lake on S3 with Glue, Athena, and Lake Formation basics

In-Memory Caching

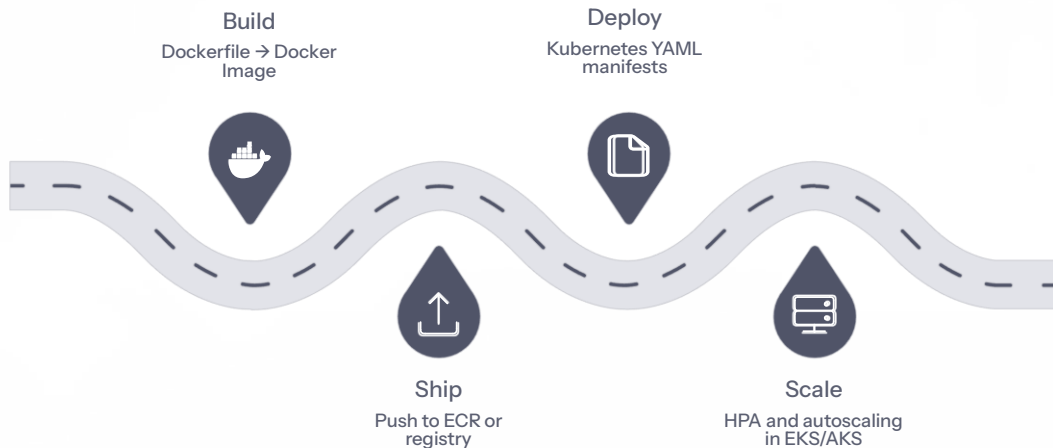
ElastiCache (Redis/Memcached) for sub-millisecond response times

Lab: Deploy RDS + DynamoDB

Deploy an RDS MySQL instance with a read replica and a DynamoDB table with DAX caching

Containers & Kubernetes

Weekly Learning Outcome: Containerize a simple application using Docker, push it to a container registry, and deploy it on a managed Kubernetes cluster using EKS or AKS.



Containers have become the standard packaging format for cloud-native applications. Mastering Docker and Kubernetes unlocks roles across DevOps, platform engineering, and backend development.

01

Docker Fundamentals

Images, containers, Dockerfile syntax, volumes, and Docker Compose for local development

02

Kubernetes Core Concepts

Pods, Deployments, Services, ConfigMaps, Secrets, Namespaces, and kubectl

03

Ingress & Networking

Ingress controllers, service mesh basics, and Kubernetes networking model

04

Container Registries

Amazon ECR, Azure Container Registry — tagging, versioning, and security scanning

05

Managed Kubernetes

Amazon EKS and Azure AKS — cluster setup, node groups, and managed control planes

06

Lab: Containerized App on EKS

Build, push, and deploy a Node.js app to EKS with a LoadBalancer service and HPA enabled

DevOps, CI/CD Pipelines & Cloud Security

Weekly Learning Outcome: Build an end-to-end CI/CD pipeline that automatically tests, builds, and deploys an application to a cloud environment, and apply core cloud security controls.

DevOps & CI/CD

- **Infrastructure as Code** — Terraform basics: providers, resources, state management
- **CI/CD Pipelines** — GitHub Actions, AWS CodePipeline, and Azure DevOps
- **Automated Testing** — Unit, integration, and smoke tests in the pipeline
- **Blue/Green & Canary Deployments** — Zero-downtime release strategies
- **Configuration Management** — Ansible basics for cloud provisioning

Cloud Security Essentials

- **Shared Responsibility Model** — What the provider covers vs. what you must secure
- **Encryption** — At-rest (KMS) and in-transit (TLS/SSL) encryption strategies
- **Security Hub & GuardDuty** — Threat detection and compliance monitoring
- **Secrets Management** — AWS Secrets Manager and Azure Key Vault
- **Penetration Testing Basics** — What's allowed and how to stay compliant

- ❑ **Mini Project 2:** Build a complete CI/CD pipeline with Terraform that deploys a containerized app, including security scanning and automated rollback on failure.

PHASE 3

Advanced & Application Phase — Weeks 9–12

Apply everything you've learned to enterprise-grade challenges: cost governance, AI/ML services, serverless architectures, multi-cloud strategy, and real-world solution design. This phase is where you become job-ready.

Week 9

Cost Optimization & Cloud Governance

Week 10

Serverless & Event-Driven Architecture

Week 11

AI/ML Services & Data Pipelines

Week 12

Multi-Cloud, Observability & Certification Prep

Cost Optimization & Cloud Governance

Weekly Learning Outcome: Use cloud-native cost management tools to identify waste, right-size resources, and design a governance framework that enforces tagging, budget alerts, and policy controls.



Cost Monitoring Tools

AWS Cost Explorer, Azure Cost Management, and GCP Billing Reports — interpreting dashboards and spotting anomalies



Right-Sizing Resources

Identifying over-provisioned instances using Compute Optimizer and Advisor recommendations



Reserved Instances & Savings Plans

1-year vs. 3-year commitments, convertible vs. standard, and when each makes financial sense



Tagging & Showback

Mandatory tagging strategies, chargeback models, and cost allocation by team, project, or environment



Cloud Governance

AWS Organizations, SCPs, Azure Policy, and landing zones for enterprise-wide guardrails



Lab: Cost Audit

Perform a full cost audit of a simulated AWS account, implement budget alerts, and write a right-sizing recommendation report



WEEK 10 & 11

EDVANTA

Ignite your growth, inspire your mind

Serverless Architecture & AI/ML Cloud Services

Week 10 — Serverless & Event-Driven

Outcome: Design and deploy a serverless REST API using Lambda, API Gateway, and DynamoDB with event-driven triggers.

- **AWS Lambda Deep Dive** — Execution model, cold starts, memory/timeout tuning
- **API Gateway** — REST vs. HTTP APIs, authorizers, and usage plans
- **Event Sources** — S3 triggers, SQS, SNS, EventBridge, and Step Functions
- **Serverless Framework & SAM** — Infrastructure as code for serverless apps
- **Cost Model** — Per-invocation pricing and where serverless saves money
- **Lab:** Build a serverless CRUD API with Lambda + API Gateway + DynamoDB

Week 11 — AI/ML & Data Pipelines

Outcome: Use pre-built AI/ML services to add intelligent features to an application and understand how data flows through a modern cloud pipeline.

- **AI/ML Services** — Amazon Rekognition, Comprehend, Translate, and Azure Cognitive Services
- **SageMaker Overview** — Notebooks, training jobs, and model endpoints for ML practitioners
- **Data Pipeline Architecture** — Kinesis, Glue, and Step Functions for streaming and batch
- **MLOps Basics** — Model versioning, A/B testing, and continuous retraining pipelines
- **Generative AI on Cloud** — Amazon Bedrock and Azure OpenAI Service overview
- **Lab:** Image classification app using Rekognition + Lambda triggered by S3 uploads

Multi-Cloud, Observability & Certification Prep

Weekly Learning Outcome: Set up a full observability stack for a cloud application, articulate multi-cloud tradeoffs, and map your skills to the right certification path for your target role.

Observability Stack

Metrics (CloudWatch/Azure Monitor), logs (ELK Stack), and distributed tracing (X-Ray, Jaeger)

Alerting & Dashboards

Creating actionable alerts, Grafana dashboards, and SLO/SLA/SLI definitions for reliability teams

Multi-Cloud Strategy

Why enterprises use multiple clouds, vendor lock-in risks, and tools like Terraform for portability

Cloud-Native Patterns

12-Factor App methodology, service mesh (Istio), and GitOps with ArgoCD

Certification Roadmap

AWS CCP → SAA-C03 → specialty certs; AZ-900 → AZ-104;
Google ACE — mapping certs to roles

Industry Guest Session

Live Q&A with a working cloud architect or SRE — real career paths, day-in-the-life, and job advice

Healthcare: Cloud-Powered Patient Data Platform

The Business Problem

A regional hospital network with 12 facilities was storing patient records in on-premises silos. Accessing cross-facility patient history took hours and required manual phone calls between departments, creating dangerous delays in emergency care.

Cloud Solution Applied

The team migrated to a HIPAA-compliant AWS environment using RDS (encrypted patient records), S3 (imaging files), and API Gateway + Lambda for a unified patient lookup API accessible to all facilities in real time.

Tools Used

AWS RDS (Multi-AZ), S3 with KMS encryption, Lambda, API Gateway, CloudTrail for audit logging, IAM with role-based access per facility

Measurable Business Impact

- Patient record retrieval: **4 hours → 8 seconds**
- Infrastructure cost reduced by **42%** vs. on-premises
- Achieved HIPAA compliance audit with **zero findings**
- 99.99% uptime across all 12 facilities

Role of Early Professionals

Junior cloud engineers on this project managed IAM configurations, wrote Lambda functions for the patient lookup API, and monitored CloudWatch dashboards during the cutover. These are Week 4–7 skills directly applied.

Presentation Expectation

Architecture diagram showing data flow from hospital to API to secure database, with compliance controls annotated at each layer.

Fintech: Auto-Scaling Trading Platform

The Business Problem

A stock trading platform experienced extreme load spikes at market open (9:30 AM EST) — traffic would jump 40× in under 2 minutes. Their fixed on-premises infrastructure either crashed under peak load or ran at 5% utilization during off-hours, burning money both ways.

Cloud Solution Applied

Migrated to AWS using Auto Scaling Groups behind an Application Load Balancer, with ElastiCache (Redis) for order book caching and SQS queues to decouple trade order processing from the matching engine. Serverless Lambda functions handled notification delivery.

Tools Used

EC2 Auto Scaling, ALB, ElastiCache (Redis), SQS, Lambda, CloudWatch Alarms with predictive scaling enabled, and DynamoDB for trade logs

Measurable Business Impact

- Zero downtime during peak market hours for **18 consecutive months**
- Infrastructure costs reduced by **58%** with right-sizing and reserved instances
- Order processing latency reduced from **340ms → 18ms**
- Platform scaled from 50K to **2M daily active traders** without re-architecture

Role of Early Professionals

Entry-level cloud engineers monitored auto-scaling events, tuned CloudWatch alarm thresholds, configured SQS dead-letter queues, and documented runbooks for incident response. Weeks 5 and 8 skills in action.

Presentation Expectation

Before/after architecture comparison with traffic flow diagram, scaling policy configuration screenshots, and cost savings breakdown.

E-Commerce: AI-Powered Recommendation Engine

A mid-size e-commerce retailer with 3M monthly users wanted to personalize product recommendations but lacked a data science team to build custom ML models. They needed a solution deployable within 8 weeks.

01

Data Ingestion

User clickstream data streamed in real time via Amazon Kinesis Data Streams from the web and mobile app

02

Data Processing

AWS Glue ETL jobs cleaned and transformed raw events, storing structured data in S3 data lake partitioned by user and date

03

ML Model

Amazon Personalize trained a collaborative filtering model on 18 months of purchase history — no ML expertise required

04

API Integration

Recommendation API integrated into the product pages via Lambda + API Gateway — latency under 50ms per call

05

Business Impact

Click-through rate on recommendations: **+34%** | Average order value: **+22%** | Time to deploy: **6 weeks**

Early Professional Role: Junior data engineers managed Glue job monitoring, S3 partition strategies, and API Gateway usage plan configurations. These are Week 11 skills directly applied in production.

Weeks 13–15: Build a Production-Grade Cloud Solution

The capstone is your proof of work — a complete, end-to-end cloud project that demonstrates every skill learned across the course. It's designed to be portfolio-ready and interview-worthy.

Project Requirements

- **Architecture:** Multi-tier, highly available, deployed across at least 2 Availability Zones
- **Infrastructure:** 100% provisioned via Terraform (Infrastructure as Code)
- **CI/CD:** Automated deployment pipeline via GitHub Actions or AWS CodePipeline
- **Security:** IAM roles with least privilege, encryption at rest and in transit, Secrets Manager
- **Observability:** CloudWatch dashboards, alarms, and centralized logging
- **Cost Report:** Monthly cost estimate using the AWS Pricing Calculator with optimization recommendations

Deliverables & Timeline

Week 13

Project scoping, architecture design document, and mentor approval of plan

Week 14

Implementation: Terraform provisioning, app deployment, CI/CD pipeline setup

Week 15

Final demo to mentor panel: live walkthrough, architecture presentation, and Q&A

✓ Capstone projects go directly onto your GitHub portfolio and LinkedIn — real evidence of cloud competency for employers.

Everything You'll Work With in This Course

You won't just read about these tools — you'll use them in labs, assignments, and the capstone. Familiarity with this stack is what employers are looking for in entry to mid-level cloud roles.

Cloud Platforms

- Amazon Web Services (AWS)
- Microsoft Azure
- Google Cloud Platform (GCP)

Infrastructure as Code

- Terraform
- AWS CloudFormation
- AWS SAM (Serverless)

Containers & Orchestration

- Docker & Docker Compose
- Amazon EKS
- Azure AKS

DevOps & CI/CD

- GitHub Actions
- AWS CodePipeline
- Azure DevOps

Monitoring & Observability

- Amazon CloudWatch
- Grafana + Prometheus
- AWS X-Ray

AI/ML & Data

- Amazon SageMaker
- Amazon Personalize
- Azure Cognitive Services

Job Roles This Course Prepares You For

Ignite your growth, inspire your mind

Cloud skills are in demand across a wide range of job titles. This course is specifically designed to make you credible and competitive for entry and mid-level positions in the following roles.



Cloud Engineer

Design, build, and maintain cloud infrastructure. Primary skills: AWS/Azure services, Terraform, networking, IAM.



DevOps Engineer

Automate deployment pipelines and manage platform reliability. Primary skills: CI/CD, containers, IaC, monitoring.



Cloud Security Engineer

Secure cloud environments and ensure compliance. Primary skills: IAM, encryption, GuardDuty, governance policies.



Cloud Data Engineer

Build and manage data pipelines on cloud platforms. Primary skills: S3, Glue, Kinesis, Redshift, Athena.



Site Reliability Engineer (SRE)

Maintain reliability and performance of production systems. Primary skills: observability, incident response, Kubernetes.



Solutions Architect (Associate)

Design cloud solutions for business requirements. Primary skills: architecture patterns, cost optimization, multi-service design.

Your Learning Journey: Beginner → Job Ready



Beginner (Weeks 1–2)

Cloud concepts, service models, provider navigation, basic compute and storage. Can deploy a simple website on AWS.



Foundational (Weeks 3–4)

Networking, IAM, security fundamentals. Can deploy a secured, multi-resource environment independently.



Intermediate (Weeks 5–8)

Architecture patterns, databases, containers, CI/CD. Can contribute to real team projects on day one of a cloud role.



Advanced (Weeks 9–12)

Cost governance, serverless, AI/ML services, observability, multi-cloud. Can independently own a cloud workload.



Job Ready (Week 15)

Portfolio capstone, certification pathway mapped, resume-ready skills, and real projects to discuss in interviews.

What You'll Walk Away With

Deep Fundamentals

A thorough understanding of cloud computing concepts that won't become outdated — the principles behind AWS, Azure, and GCP are the same even as services evolve.

Architecture Thinking

The ability to look at a business problem and design a cloud solution — the core skill that separates good cloud engineers from great ones.

Certification Readiness

Strong preparation for AWS Certified Solutions Architect Associate (SAA-C03) and AZ-104 — two of the most in-demand cloud certifications in the market today.

Hands-On Skills

12+ labs, 3 mini-projects, and a full capstone project. You'll have done the work, not just read about it — and have GitHub repos to prove it.

Industry Context

Real examples from healthcare, fintech, and e-commerce show how these skills apply in organizations you'll actually work in. No synthetic toy problems.

Career Clarity

A clear picture of which cloud role fits your strengths, which certifications to pursue next, and exactly how to position yourself for your first or next cloud job.



Ignite your growth, inspire your mind

Your Cloud Journey Starts Here

Every expert cloud architect once sat exactly where you are today — curious, maybe a little unsure, but ready to learn. This course gives you the roadmap, the tools, and the mentorship to make the jump from learner to practitioner.

Commit to the Process

Four months of consistent effort. Show up for the labs, ask questions in mentoring sessions, and push every project to GitHub.

Build in Public

Share your weekly progress on LinkedIn. Document what you're building. Employers notice learners who are transparent about their growth.

Stay Curious

Cloud is a living, evolving ecosystem. The mindset you build here — of continuous learning and hands-on experimentation — is your most durable career asset.

The best time to start was yesterday. The second best time is right now.
— Industry wisdom shared by every cloud architect who's been where you are.