Where trainees meet real Support

AWS Cloud Engineering Course

Architect, Deploy & Scale Enterprise Cloud Solutions

8 Weeks Duration • 40 Total Lectures (5 Lectures/Week) • Beginner to Advanced

About the Course

- **Structured Learning Journey:** From AWS core concepts to enterprise multi-tier cloud architectures
- **Career-Oriented:** Tailored for cloud architects, DevOps engineers, and system administrators
- **Comprehensive Scope:** IAM security, EC2 compute, S3 storage, VPC networks, RDS databases, and serverless
- **Hands-On Methodology:** 100% practical cloud engineering labs deploying production infrastructure in AWS
- **Portfolio Capstone:** Design and deploy a fault-tolerant, high-availability architecture aligned with AWS best practices

Who Can Attend?

- Software Developers & DevOps Engineers seeking cloud architecture expertise
- System Administrators & Infrastructure Support Engineers
- Database Administrators (DBAs) & Backend Integrators
- IT Professionals preparing for AWS Certified Solutions Architect Associate

**No previous AWS experience required. Starting points are tailored to learner background.*

Course Outline

Phase 1: Cloud Fundamentals & IAM Security (Week 1)

- What is Cloud Computing: IaaS, PaaS, SaaS, Public vs. Private vs. Hybrid cloud models
- AWS Global Infrastructure: Regions, Availability Zones (AZs), Edge locations & Data Centers
- AWS Identity & Access Management (IAM): Users, User Groups, Policies, Roles & MFA
- AWS Free Tier governance, Billing Alerts & AWS CLI environment setup
- Services & Labs: AWS Management Console, IAM, CloudShell • Hands-on: Create account, configure IAM users/roles, enforce MFA & least-privilege security policies
- Outcome: Understand AWS architecture and configure secure cloud identity management.

Phase 2: Compute & Storage Solutions (Weeks 2–3)

- Amazon EC2 (Virtual Servers): Instance types, AMIs, Key Pairs, Security Groups & User Data scripts
- Amazon Elastic Block Store (EBS): Volume types (gp3, io2), snapshots & multi-attach
- Amazon S3 (Simple Storage Service): Buckets, storage classes, lifecycle policies & versioning
- Static website hosting on S3, bucket policies, and cross-region replication (CRR)
- Services & Labs: EC2, S3, EBS • Hands-on: Launch production EC2 instance, deploy multi-tier app, host static site on S3, configure lifecycle rules
- Outcome: Run applications reliably on AWS compute and manage enterprise object storage.

Phase 3: Cloud Virtual Networking (Week 4)

- Amazon VPC (Virtual Private Cloud): IP CIDR blocks, Public & Private Subnets
- Internet Gateways (IGW), Route Tables, NAT Gateways & Elastic IP allocation
- Security Groups vs. Network Access Control Lists (NACLs) defense-in-depth
- Elastic Load Balancing (Application Load Balancer vs. Network Load Balancer) & Health Checks
- Services & Labs: VPC, ALB, Route Tables • Hands-on: Build secure dual-tier VPC, provision public/private subnets, configure NAT Gateway, deploy ALB across AZs
- Outcome: Architect isolated, highly available and secure enterprise cloud networks.

Phase 4: Database Services (Week 5)

- Amazon RDS: Managed relational databases (PostgreSQL, MySQL), Multi-AZ high availability & Read Replicas
- Amazon Aurora: Cloud-native database architecture with auto-scaling storage
- Amazon DynamoDB: Fully managed NoSQL, partition keys, sort keys, global secondary indexes (GSI)
- Services & Labs: RDS, DynamoDB • Hands-on: Provision Multi-AZ RDS instance, connect backend application, perform CRUD operations, create DynamoDB table
- Outcome: Manage cloud databases and seamlessly integrate relational and NoSQL storage with apps.

Phase 5: Serverless Architecture & APIs (Week 6)

- Serverless computing fundamentals, event-driven design & microservices
- AWS Lambda: Function runtimes, concurrency, triggers, execution roles & environment variables
- Amazon API Gateway: RESTful APIs, HTTP APIs, resource routing, authorization & rate limiting
- Services & Labs: Lambda, API Gateway, SQS, SNS • Hands-on: Build serverless REST API, connect Lambda to DynamoDB, trigger email notifications via SNS
- Outcome: Build scalable, low-cost serverless microservices without managing servers.

Phase 6: Cloud DevOps & CI/CD (Week 7)

- Cloud DevOps principles, automated delivery pipelines & source control integration
- AWS CodePipeline, AWS CodeBuild & AWS CodeDeploy for automated CI/CD
- Docker containerization: Dockerfiles, multi-stage builds & Amazon Elastic Container Registry (ECR)
- Services & Labs: CodePipeline, CodeBuild, Docker, ECR • Hands-on: Dockerize backend app, push image to ECR, configure automated build & deploy pipeline
- Outcome: Automate continuous integration and continuous deployment pipelines end-to-end.

Phase 7: Monitoring, Scaling & FinOps (Week 8)

- Amazon CloudWatch: Metrics, log groups, custom alarms & real-time operational dashboards
- EC2 Auto Scaling Groups (ASG): Launch templates, scaling policies (target tracking & step scaling)
- AWS Well-Architected Framework: Security, Reliability, Performance Efficiency & Cost Optimization
- Services & Labs: CloudWatch, Auto Scaling, Cost Explorer • Hands-on: Build CloudWatch monitoring dashboard, configure CPU-based auto scaling, set up cost budget alerts
- Outcome: Manage production systems, ensure 99.99% uptime, and optimize cloud infrastructure costs.

Hands-on Capstone Projects

- **Full Stack Cloud Deployment:** Deploy backend microservice on EC2/ALB, database on RDS PostgreSQL, static assets on S3, secured with SSL & Route 53
- **Serverless Enterprise API:** Event-driven architecture with AWS Lambda, API Gateway, DynamoDB persistence, and SQS/SNS decoupling
- **Scalable High-Availability Web App:** Multi-AZ VPC deployment with Application Load Balancer, EC2 Auto Scaling, CloudWatch alarms & auto-healing

Tools & Technologies

Amazon Web Services (AWS), AWS Console, AWS CLI, Amazon EC2, S3, EBS, VPC, Application Load Balancer, Amazon RDS, DynamoDB, AWS Lambda, API Gateway, CodePipeline, CodeBuild, Docker, ECR, CloudWatch, Auto Scaling

High-Value POC Categorization

- **Beginner:** EC2 instance launch, S3 static website hosting, IAM policies & basic security groups
- **Intermediate:** Dual-tier VPC architecture, Multi-AZ RDS integration, Serverless API with Lambda
- **Advanced:** Multi-AZ Auto Scaling system, CI/CD automated pipeline, CloudWatch monitoring & alarms

Why This Program?

- Practical AWS cloud engineering foundation with 100% hands-on labs and real enterprise topologies
- Direct alignment with the AWS Certified Solutions Architect Associate (SAA-C03) exam syllabus
- Production DevOps practices: Docker containerization & automated CI/CD pipelines
- Real-world industry case studies and 3 portfolio-ready capstone projects
- Designed for career transition into high-paying AWS Cloud & DevOps Engineer roles

How This Fits Your Full Learning Stack

- Frontend → UI • Backend → Java / Python • Cloud → AWS Cloud Engineering • Data → Databricks & SQL
- **Final Result: Full Stack + Cloud + AI Engineer**

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