

AWS Cloud and DevOps-Kickstart Program

Duration: 20 days

Module 1- AWS Fundamentals

- Cloud Computing
- Deployment Models
- Benefits of Cloud
- AWS Global Infrastructure
- AWS Shared Responsibility Model
- AWS Well Architected Framework

Demo

- AWS Console Walkthrough

Module 2- Security

- IAM
- Policies
- Roles
- MFA
- Organizations
- SCP
- KMS
- GuardDuty
- Config

Demo

IAM Role & Cross Service Access

Lab 1: Create Users, Groups and attach policy and test the access.

Module 3- AWS Compute

- EC2 Fundamentals - Instance Types, AMI, EBS storage, User Data Scripts
- Pricing Models
- Security Groups
- High Availability Architecture
- Load Balancers
 - ALB
 - NLB
 - GWLB
- Auto Scaling Group

Lab 2: Launch EC2 and deploy web server

Module 4- Networking

- IP fundamentals - CIDR
- VPC

- CIDR
- Subnets
- Route Tables
- Internet Gateway
- NAT Gateway
- Elastic IP
- Security Groups
- NACL
- VPC Endpoints
- VPC Peering
- Transit Gateway
- VPN
- Direct Connect

Lab 3: Build VPC from scratch

Lab 4: Build VPCs and VPC Peering

Module 5- Storage

- EBS
- Snapshots
- EFS
- S3
- Storage Classes
- Lifecycle
- Replication

Lab 5: Create a version enabled S3 bucket and perform putObject and getObject.

Module 6- Database

- RDS
- Multi-AZ
- Read Replicas
- DynamoDB
- ElastiCache
- DMS

Demo: Launch RDS MySQL instance

Lab 6- Create Dynamodb table and insert items and explore.

Module 7 – Monitoring & Operations

- CloudWatch
- CloudTrail
- Trusted Advisor
- Systems Manager

Demo: Create CloudWatch Alarms

Lab 7: explore CloudWatch logs and Cloudtrail event history

Module 8- Serverless

- Lambda
- SQS
- SNS
- API Gateway
- Step Functions
- Kinesis

Demo: Serverless Application

Lab 8: Built and integrate Lambda with API gateway

Module 9- Edge & Security

- Route53
- CloudFront
- WAF
- Shield
- Firewall Manager

Demo

CloudFront + S3

Lab 9: Launch Static Website in S3 + create record in Route53

Module 10 - Migration

- Migration Strategies
- Introduction AWS Migration Services

Module 11 – AI/ML in AWS

- AI vs ML vs DL
- Generative AI
- Amazon Bedrock
- Amazon Q
- Prompt Engineering
- RAG
- Responsible AI

Demo: Bedrock Playground

Lab 10

- Bedrock Playground
- Prompt Design
- Explore PartyRock

Case Study: Design and implement multi-tier highly available, scalable resilient architecture

Module 12 - DevOps Fundamentals

- What is DevOps
- DevOps Lifecycle
- Amazon DevOps Culture

Module 13 : Automation

- Infrastructure as Code
- CloudFormation

Demo: CloudFormation Stack

Lab 11: Deploy VPC network stack using CloudFormation

Module 14 – AWS Toolkits

- AWS CLI
- SDK
- SAM
- CDK
- Cloud9

Lab 12: explore AWS CLI commands

Module 15: Continuous Integration (CI)

- Git Basics
- GitHub
- CodeCommit
- CodeBuild

Demo: Prepare Git local and remote repo on Github and make a build project

Lab 13:

- Git Repository
- Commit Code
- CodeBuild Project

Module 16- Continuous Delivery

- CodeDeploy
- CodePipeline

Demo: Deploy a web application using CodeDeploy and prepare a Complete CI/CD pipeline using CodePipeline.

Lab 14: Build: GitHub → CodeBuild → CodeDeploy → EC2 using CodePipeline

Module 17- Docker Fundamentals

- Containers
- Docker
- Dockerfile

Demo: Containerize Application using Docker

Lab 15:

- Create Dockerfile
- Build Image
- Push to DockerHub

Module 18 – Container on AWS

- ECS
- ECR
- Fargate
- EKS

Demo: Push image to ECR and Deploy Container on ECS

Lab 16: Deploy: Application → ECR → ECS Fargate

Module 19- Deployment Strategies

- Rolling
- Blue/Green
- Canary
- Immutable

Case Study on CI/CD with ECS- Build a full fledged CI/CD pipeline and deploy containers on Fargate using ECS