KOENIG
step forward

AWS Fundamentals: Introduction to Cloud Computing with AWS

This course provides a foundational understanding of Amazon Web Services (AWS) and the core principles of cloud computing. Participants will explore key AWS services, architectural best practices, security features, and pricing models. Through guided lectures and hands-on labs, learners will gain practical skills to start using AWS for compute, storage, networking, and identity management. The course is ideal for individuals new to cloud computing or AWS and serves as a stepping stone toward more advanced AWS certifications and cloud roles.

Course objectives

By the end of this course, participants will be able to:
1. Understand the cloud computing model and its advantages.
2. Identify and describe core AWS services for compute, storage, and networking.
3. Use the AWS Management Console and AWS CLI for basic service interactions.
4. Understand the AWS shared responsibility model and key security practices.
5. Grasp basic architectural principles of designing on AWS.
6. Explain AWS billing, pricing models, and support plans.
7. Launch and manage EC2 instances, S3 buckets, and IAM users/policies.

Prerequisites

- General IT business knowledge
- General IT technical knowledge

Target Audience

- Sales
- Legal
- Marketing
- Business analysts
- Project managers
- Other IT-related professionals

Course outline

Module 1: Introduction to Cloud Computing & AWS *(1 Hour)*
- What is cloud computing?
- Benefits of the cloud (agility, elasticity, cost savings, global reach)
- Types of cloud models: IaaS, PaaS, SaaS
- Deployment models: Public, Private, Hybrid, Multi-cloud
- AWS Overview: company background, global infrastructure
- AWS Regions, Availability Zones, and Edge Locations

Activities:
- Group discussion: "Where do you see cloud used today?"
- Explore AWS Global Infrastructure

Module 2: AWS Core Services Overview *(1.5 Hours)*
- Compute: EC2 basics, AMIs, instance types, Lambda (intro)
- Storage: S3 basics, object storage vs block storage, lifecycle policies
- Databases: Introduction to RDS, DynamoDB
- Networking: VPC basics, subnets, Internet Gateway, NAT

Activities:
- Quick Quiz on service categories
- Diagram walkthrough of a simple AWS architecture

Module 3: Getting Started with AWS *(1.5 Hours)*
- Setting up an AWS Free Tier account
- Navigating the AWS Console
- Introduction to the AWS CLI
- Basic CLI Commands: aws s3, aws ec2, aws iam
- Hands-on Setup of IAM, EC2, and S3

Hands-On Lab:
- Launch an EC2 instance
- Create and configure an S3 bucket
- Access AWS using CLI

Module 4: Security and Identity Management *(1.5 Hours)*
- Shared Responsibility Model

- AWS Identity & Access Management (IAM):
  - Users, Groups, Roles, Policies
  - IAM Best Practices (MFA, Least Privilege, Role Switching)
- AWS Key Management Service (KMS) Overview
- Intro to AWS Organizations

Hands-On Lab:
- Create IAM user/group with specific permissions
- Apply a policy to restrict S3 actions

Module 5: Monitoring and Management Tools *(1 Hour)*
- AWS CloudWatch for metrics and alarms
- AWS CloudTrail for auditing
- AWS Config for compliance tracking
- Resource tagging and cost management tools

Hands-On Lab:
- Set up a CloudWatch Alarm for an EC2 instance
- View logs in CloudTrail

Module 6: Architecture and Design Principles *(1 Hour)*
- Introduction to the AWS Well-Architected Framework
- Design for failure
- Loose coupling and microservices
- Elasticity and scalability
- Security and operational excellence principles

Activities:
- Group discussion: Analyzing a sample reference architecture
- Architecture diagram critique session

Module 7: Billing, Pricing, and Support *(1 Hour)*
- AWS Pricing Models: On-Demand, Reserved, Spot
- AWS Free Tier explained
- Using AWS Pricing Calculator
- Introduction to AWS Budgets and Cost Explorer
- Support plans: Basic, Developer, Business, Enterprise

Hands-On Lab:
- Use Pricing Calculator for a sample solution
- Explore billing dashboard and set a billing alert

Module 8: Databases on AWS (Intro) *(1 Hour)*
- When to use RDS vs. DynamoDB
- Introduction to Amazon Aurora
- Basic concepts: Read Replicas, Backups, Availability
- RDS setup and configuration options
- Global tables in DynamoDB (brief intro)

Hands-On Lab:
- Launch a sample RDS database
- Query a DynamoDB table using AWS Console

Module 9: Serverless and Event-Driven Architecture *(1 Hour)*
- What is Serverless?
- AWS Lambda in detail
- Events: S3 triggers, SNS topics, SQS queues
- Use cases and best practices

Hands-On Lab:
- Create and test a basic Lambda function
- Trigger Lambda from an S3 upload event

Module 10: AWS Cloud Development Tools *(1 Hour)*
- Infrastructure as Code (IaC): CloudFormation Overview
- AWS Cloud Development Kit (CDK) – intro only
- Elastic Beanstalk overview for app deployment
- DevOps tools: CodeCommit, CodePipeline, CodeBuild

Hands-On Lab:
- Launch an app using Elastic Beanstalk
- Review CloudFormation templates

Module 11: Capstone Project & Review Lab *(2 Hours)*
Project Scope:
- Launch a secure web server

- Use IAM roles for access
- Store logs in S3
- Monitor using CloudWatch
- Cost estimate with Pricing Calculator

Group Activity:
- Build an architecture diagram
- Share and present use cases