

AWS Solution Architect Certification Training Course

Course Curriculum: Your 15 module Learning Plan

https://www.edureka.co/aws-certification-training

About Edureka

Edureka is a leading e-learning platform providing live instructor-led interactive online training. We cater to professionals and students across the globe in categories like Big Data & Hadoop, Business Analytics, NoSQL Databases, Java & Mobile Technologies, System Engineering, Project Management and Programming. We have an easy and affordable learning solution that is accessible to millions of learners. With our students spread across countries like the US, India, UK, Canada, Singapore, Australia, Middle East, Brazil and many others, we have built a community of over 1 million learners across the globe.

About Course

Edureka's AWS Certification is curated by industry professionals as per the industry requirements and demands. This AWS Training will help you prepare for the AWS Certified Solutions Architect - Associate exam SAA-C03. With Edureka's live instructor-led sessions, you will be able to effectively architect, monitor and deploy secure and robust applications using AWS. This AWS solutions architect certification course will help you identify the appropriate Amazon Web Services including databases, network, storage, cost optimization, compute, and security requirements.

AWS Course Curriculum

Introduction to AWS

Topics:

- Classic Data Center
- Virtualization
- Cloud and Cloud Computing
- Cloud Computing Service Models
- Cloud Computing Deployment Models
- Service Comparison: AWS, Azure, and GCP
- Amazon Web Services (AWS) and its Benefits
- AWS Global Infrastructure
- AWS Regions and Replication of data between the Regions
- Availability Zones and High Availability
- PoP Locations
- Signup an AWS Free Tier Account
- Different Amazon Web Services
- Ways to access AWS: CLI, Console, and SDKs
- Explore Management Console and Configure AWS CLI
- AWS CloudShell

- Sign-up for AWS free-tier account
- Explore Console and Configure CLI

Amazon EC2

Topics:

- Virtualization
- Amazon Elastic Compute Cloud (EC2) and Its Benefits
- Amazon Machine Image (AMI)
- Security Groups in AWS
- Authentication through Key-pair
- Hardware Tenancy Shared vs. Dedicated
- Networking Layer in EC2: VPC
- Elastic Network Interface (ENI) and Its Attributes
- Different Categories of IP Address
- Public IP vs. Elastic IP
- Instance Store
- Elastic Block Store (EBS), Its Features and Volume Types
- Solid State Drive: General Purpose SSD and Provisioned IOPS
- Hard Disk Drive: Throughput Optimized HDD and Cold HDD
- Snapshots
- Elastic File System (EFS) and Its Features
- EBS vs. EFS
- Amazon FSx: Windows File Server and Lustre
- AWS Batch

- Creating an EC2 instance
- Creating a Custom AMI
- Host your website inside your EC2 Instance

- Create an Elastic IP
- Attaching the EBS Volume Externally
- Create a Snapshot
- Attach EFS Volume to an EC2 instance
- Mount Fsx into Windows Servers and Share the same file

AWS Storage Options

- Traditional Storage
- Need to Move to Cloud Storage
- Traditional vs. Cloud Storage Cost
- Cloud Storage
- Different Storage Options Available on AWS
- Simple Storage Service (S3) and Its Components
- Working of S3
- Bucket Policy
- Access Control List(ACL)
- Versioning
- S3 Replicate
- Cross-Region Replication (CRR) and Its Use Case
- Amazon S3 Transfer Acceleration
- Choice of Storage Classes on S3
- Lifecycle Policy of S3 Bucket
- AWS Backup
- S3 Batch Operation

- CDN: CloudFront
- Storage Gateway

Hands-On:

- Hosting a Static Website on Amazon S3
- Versioning in AWS S3
- Replicating data across regions
- Transfer and retrieve data from Glacier through lifecycle policy
- Build a Backup plan from scratch and Create Backup Vault
- Accessing a static website through CloudFront
- File Share via AWS Storage Gateway

Networking using AWS

- VPC Benefits and Components
- CIDR Notations
- IP Address
- Network Access Control List v/s Security Groups
- NAT (Network Address Translation): NAT Devices, NAT Gateway, and NAT instance
- VPC peering
- Direct Connect
- Private Link
- AWS Transit Gateway
- AWS Global Accelerator
- Elastic Load Balancer and its types

- Advanced features of ELB
- Launch Templates
- Launch Configurations
- Comparison of Classic, Network, and Application Load Balancer
- Working on Route 53
- Various Routing Policies

Hands-On:

- Create a Non-default VPC and attach it to an EC2 instance
- Accessing Internet inside Private Subnet using NAT Gateway
- Connect two instances in different VPCs using VPC peering
- Accessing Application within two VPCs (Different Accounts) connected via a Private link
- Create a Classic Load Balancer
- Create a Network Load Balancer
- Work with Application Load Balancer
- Maintaining the User Experience with Low Latency Using Route 53 Traffic Flow Feature

AWS Database Services

- Amazon RDS and its benefits
- Read Replica
- RDS IAM Authentication
- DynamoDB
- ElastiCache: Working, Redis vs. Memcached
- Amazon Redshift

- Amazon Aurora
- Amazon Aurora Serverless
- Amazon Keyspaces (for Apache Cassandra)

Hands-On:□

- Storing Application Data in MySQL DB using Amazon RDS
- Perform CRUD operations on No-SQL Database
- Caching data using Amazon ElastiCache
- Managing Airline data using managed Data warehouse service AWS Redshift
- Amazon Keyspaces CRUD operations using CQL Editor
- Creating a Graph Database on AWS Neptune

Identity and Security Management in AWS - Part I

- User management through Identity Access Management (IAM)
- Various access policies across AWS Services
- Security Token Services
- AWS Resource Access Manager (RAM),
- AWS Single Sign-On (SSO)
- AWS Cognito
- AWS Artifact
- AWS Audit Manager
- AWS Certificate Manager (ACM)
- AWS Directory Service
- Best practices for IAM
- Access billing and create alerts on billing

Hands-On:

- Create new users who can log in to the AWS console
- Create a role for an application to access S3
- Create policies for new users to have either admin or limited privileges
- Configuring Strong and Secure Authentication Access Mechanism using Amazon Cognito

Identity and Security Management in AWS - Part II

Topics:

- AWS Security & Encryption: KMS, CloudHSM, Shield, WAF, Guard Duty
- API keys service access
- AWS Secrets Manager
- AWS Security Hub
- Amazon Detective
- AWS Firewall Manager
- AWS Network Firewall
- Amazon Inspector
- Amazon Macie
- AWS Trusted Advisor

- Configure WAF to Protect Website from Attacks
- Monitoring Malicious Activity or Unauthorized Behaviour via GuardDuty
- Explore Trusted Advisor
- Collecting Security logs using Amazon Detective

Monitoring Resources and Governance in AWS

Topics:

- AWS CloudWatch
- AWS CloudTrail
- AWS Config
- AWS Auto Scaling
- AWS Control Tower
- AWS License Manager
- AWS Organizations
- AWS Personal Health Dashboard
- AWS Service Catalog
- AWS Systems Manager

Hands-On:

- Monitoring Application Metrics Using CloudWatch Dashboard
- Auditing Amazon Cloud Services via AWS CloudTrail
- Auto-Scaling and Scaling policy

Application Services, Serverless Computing and Provisioning Infrastructure

- AWS Simple Email Service (SES)
- Implement SES
- Demonstrate the working of SNS
- SQS: Work with SQS, ASG with SQS

- Amazon MQ
- Amazon Event Bridge
- AWS Simple Notification Service (SNS)
- AWS Step Functions
- AWS Lambda
- AWS Fargate
- AWS Serverless Application Model
- AWS CloudFormation
- AWS Elastic Beanstalk

Hands-On:□

- Send an Email(SES) on the addition of user data(Lambda) in the DynamoDB table.
- Monitor status of EC2 instance using a combination of EventBridge and SNS.
- Manage tightly coupled architecture using Amazon SQS.
- Create workflows using AWS Step Functions to coordinate application logic across distributed systems.
- Create Cloud Formation templates using both JSON and YAML
- Deploy a Web Application with DynamoDB using Beanstalk

AWS Architectural Designs - I

- AWS Well-Architected Framework
- How to Build a Well-Architected Framework
- Pillars of AWS Well-Architected Framework
- Resilience
- Design Highly Available and/or Fault-Tolerant Architectures

- Choose Appropriate Resilient Storage
- Designing Decoupling Mechanisms Using AWS Services
- Design a Multi-tier Architecture Solution
- Disaster Recovery (DR)
- Options to Implement DR Plans
- Design High-Performance Architecture
- Achieve Performance Efficiency using Selection
- Achieve Performance Efficiency using Review
- Achieve Performance Efficiency by Monitoring
- Achieve Performance Efficiency by Performing Trade-offs

Hands-On:

• Designing a website using Serverless Architecture

AWS Architectural Designs – II (Self-paced)

- Design Secure Applications and Architectures
- Cloud Security
- AWS IAM
- How IAM Secures your Resources
- Identity and Federation
- Shared Responsibility Model
- Shared Responsibility Model for Infrastructure Services
- Shared Responsibility Model for Container Services
- Shared Responsibility Model for Abstraction Services

- Network Security Layer
- Multi-Layer Architecture With Network Security
- AWS HSM and its working
- AWS S3 Security
- AWS Security and Compliance Centre
- Design Cost-Optimized Architectures
- Cost Optimization
- Cost Optimization Design Principles
- Cost Effective Resources

Cloud Analytics and Cost Management on AWS

- What is Cloud Analytics?
- AWS Analytics Services
- Amazon Athena
- How to use Amazon Elastic MapReduce (EMR)?
- Amazon Kinesis
- How to visualize Web Traffic Using Kinesis Data Stream
- Amazon Elasticsearch
- Amazon QuickSight
- AWS Lake Formation
- AWS Cost Management
- AWS Cost Management Services
- AWS Cost Explorer
- AWS Budgets

• AWS Cost Optimization

Hands-On:

- Analyzing CloudTrail Logs Using Amazon Athena
- Analyzing Fine-Grained Metrics Using Apache Hive on Amazon EMR
- Design Solution using Amazon Kinesis Data Steam, Kinesis Firehose, Kinesis Analytics
- Analyzing VPC Network Data Using Elasticsearch and Kibana
- Set Alerts and Create a Budget for Your AWS Account
- Managing an AWS Account Cost

Migrating to Cloud (Self-paced)

- Why Cloud Migration
- What is Cloud Migration
- Migration Phases
- CAF Perspectives and their Roles
- AWS Migration Hub and ways to use AWS Migration Hub
- AWS Migration Hub use cases
- AWS Application Discovery Service
- Application Discovery Tools
- Application Migration to AWS
- Application Migration Phases
- AWS Server Migration Service(SMS) and it's working
- Database Migration Service
- · Working of DMS
- AWS Database Migration use cases

- Types of data transfer: Homogenous and Heterogenous
- Database Schema Migration tool
- Database Migration best practices

Hands-On:

- Gather Details of Migrating resources via Application Discovery Service and track the migration via AWS Migration Hub.
- Migrating 3-tier Application to AWS Cloud
- Homogenous Database Migration
- Heterogeneous Database Migration

Containers in AWS (Self-paced)

- ECS Introduction
- Need for ECS
- ECS Cluster
- ECS Task Definition
- ECS Service
- ECR Introduction
- Need for ECR
- Push an image to ECR
- ECS Service with a load balancer
- Deploy an application over the ECS cluster
- EKS
- Need for EKS
- EKS Architecture

- EKS Cluster
- Creating an EKS Cluster
- EKS Cluster cost

Hands-On:

- To Push An Image Into ECR
- To Host A Website Inside ECS
- Create an EKS Cluster
- Access Kubernetes Dashboard Using eksctl

AWS Machine Learning and Media Services (Self-Paced)

- What is Machine Learning (ML)?
- Al vs. Machine Learning vs. Deep Learning
- Steps of Machine Learning
- Types of Machine Learning algorithms
- Machine Learning on AWS cloud platform
- Amazon SageMaker
- Amazon SageMaker components
- Business Intelligence Amazon QuickSight
- What are Chatbots?
- Amazon Lex
- Key concepts of Amazon Lex
- Working on Amazon Lex
- Amazon Rekognition
- How Amazon Rekognition works?

- Amazon Polly
- How does Amazon Polly work?
- Amazon Elastic Transcoder
- Amazon Kinesis Video Streams

- Convert Text into Speech using Amazon Polly
- Detect Objects using Amazon Rekognition
- Create Chabot using Amazon Lex
- Deploy machine learning model using Amazon SageMaker

AWS Certification Projects

What are the system requirements for this AWS Training and Certification?

The system requirements to attend this AWS Certification Online include minimum 8 GB RAM, Intel Core i3 processor or above and 20 GB HDD.

How will I execute practicals in this AWS Course?

In this AWS training and certification, you will be working on the cloud servers and various other services that Amazon provides. You can create a Free Tier account on AWS, which will give you access to all the AWS services. The stepwise guide for accessing these services will be available in the LMS and Edureka's support team will assist you 24*7 in case you have any doubts.

Which projects will be a part of this AWS Certification Training?

The AWS certification course project will test your ability to work with AWS services. Following is the problem statement for the same:

Problem Statement 1: As a Cloud Architect, you have to design an infrastructure using AWS to host a web application, as per below requirements-

- Virtual isolation of network from customers using the web application
- Secure storage of customer data and a proper solution to perform patching, take backups, and maintain high availability of web application
- Ensure that web application is capable of managing the uncertain traffic patterns
- Proper monitoring solution where the developers should be notified VM status
- Users should be able to access the web application with low latency

Problem Statement 2:

A startup company wants to host its Python and React-based application (Backend: Python API and

Frontend React) using AWS. As an AWS solutions architect you have to design proper solution to their below requirements-

- Virtual isolation of network, where the only frontend of application is accessible by users and not the database
- An automatic set up where the source code of application is picked, pushed to master branch and deployed on the servers
- Ensure an application is highly available during uncertain traffic patterns
- Design a dashboard that collects all the application log activities, analyzes them and, properly displays them.
- Users should be able to access the web application with low latency