K21Academy

Learn Cloud, Data & AI from Experts



CLOUD

JOB ORIENTED PROGRAM WITH 11 CERTIFICATIONS

Master Cloud Skills Before Someone Else Masters Your Role

It’s not just a trend—it’s the foundation of digital transformation today. Traditional IT roles are rapidly evolving, and cloud-native skills are now essential. You might be good at what you do, but without AWS or Azure expertise, you're at risk of being left behind.

But here's the good news: You have the power to future-proof your career starting today.

Our **Cloud Job-Oriented Program (AWS & Azure)** is designed to turn you into a certified, cloud-ready professional. With **11 industry certifications and real-world hands-on experience**, this program ensures you’re not just learning cloud—you’re mastering it to solve business challenges, get hired faster, and accelerate your career.



Why Choose This Program?

- **11 Certifications** from **AWS & Azure** that validate your cloud expertise
- Practical, hands-on training in **Cloud, DevOps, and Security** — skills top employers demand
- Real-world projects to showcase your capabilities in interviews and portfolios
- Career-ready curriculum designed to bridge the gap between learning and getting hired

Our 3-Step Roadmap:

- **From Uncertainty to Confidence:** Master AWS and Azure from the ground up—learn what really matters
- **From No Calls to Recruiters Reaching Out:** Stand out with real projects and top cloud certifications
- **From Zero Offers to Multiple Opportunities:** Walk away with a job-ready portfolio that proves your worth

For IT Professionals Ready to Level Up:

- Want a **high-paying job** in Cloud, DevOps, or Cloud Security?
- Looking to build a **solid foundation in AWS and Azure to future**-proof your career?
- Ready to transition from System Admin, Network Engineer, or Developer into **high-demand Cloud roles**?

This program is designed to help you go from stuck to certified, confident, and cloud-ready—whether you're starting fresh or upskilling to move into modern IT.

Here’s What You’ll Be Ready For:

- Cloud Engineer
- AWS DevOps Engineer / Azure DevOps Engineer
- Azure Administrator / AWS SysOps Admin
- Cloud Security Engineer
- Cloud Solutions Architect
- Site Reliability Engineer (SRE)
- Cloud Migration & Infrastructure Modernization Expert

Course Breakdown

1

Cloud For Beginners



- Introduction to Cloud
- Cloud Characteristics
- Benefits of Cloud
- Capex vs Opex
- Cloud Service Models (IaaS, PaaS, SaaS)
- Shared Responsibility Model
- Cloud Deployment Models (Public, Private, Hybrid)
- Choosing a Cloud Platform (AWS, Azure, GCP, OCI)
- Multi-Cloud Strategy

2

AWS For Beginners



- Cloud & AWS Overview
- AWS Global Infrastructure & Regions
- IAM: Users, Groups, Policies & Roles
- Compute Services: EC2, Lambda, ECS, EKS, Fargate
- Storage & Networking: S3, EBS, VPC, Subnet, Gateway, LB
- Database Services: RDS, DynamoDB, ElastiCache
- Automation & Monitoring: CloudFormation, CloudWatch, CloudTrail
- Application & DevOps Services: SNS, SES, SQS, CodeCommit, CodeBuild
- AWS Architecture & Access Methods

Hands-On Lab:

- Create an AWS Free Tier Account
- Manage AWS Costs & Budgets
- Troubleshoot Billing Issues
- Connect a Linux Machine on AWS
- Create & Connect Windows Machine on AWS
- Install & Configure AWS CLI

Course Breakdown

- Create an Ubuntu EC2 Instance
- Create IAM User with Administrator Access

3

Azure For Beginners



- Azure Account & Subscription
- Azure Services Overview
- IAM & Azure Active Directory
- Compute: Virtual Machines, App Service, Functions, Logic App
- Compute: Docker & Kubernetes (ACR, ACI, AKS)
- Networking & Storage Services
- Data Services: SQL, Synapse, Data Factory, Data Lake
- Data Protection: Backup & Restore
- Monitoring: Log Analytics

Hands-On Lab:

- Register for an Azure Free Trial Account
- Switch to Pay-as-you-go Account (Optional)
- Create Budget (Billing Alert)
- Create Windows VM (Quick Start)

4

Linux For Beginners



- Create a Linux Instance on AWS Cloud
- Create a Linux Instance on Azure Cloud
- Basic Linux Commands
- Git & GitHub

Hands-On Lab:

- Install & Configure Git & GitHub

Course Breakdown

5

AWS Cloud Practitioner



- Introduction to Cloud and AWS
- Global Infrastructure and Reliability
- Compute in the Cloud
- Networking in AWS
- Load balancer, AutoScaling & Route 53
- Storage and Database
- Security and Compliance
- Monitoring & Messaging Services
- AWS Developer Tools
- Pricing and Support

Hands-On Lab:

- CloudWatch – Create Billing Alarm & Service Limits
- Managing AWS Costs with AWS Budgets and Credits
- Install & Configure AWS CLI
- Configure AWS CLI on Ubuntu Instance
- Working with AWS IAM Users, Groups & Roles
- S3 Lifecycle Management on S3 Bucket
- Configure Amazon CloudWatch to Notify Changes in EC2 CPU Utilization

6

Azure Fundamentals [AZ-900]



- Introduction to Cloud Concepts
- Azure Architectural Components
- Computing and Networking
- Azure Storage
- Identity, Access, and Security
- Cost Management
- Governance and Compliance.
- Management and Deployment Tools

Course Breakdown

- Azure Monitoring Tools

Hands-On Lab:

- Create Blob Storage
- Create a SQL Database
- Implement an Azure IoT Hub
- Implement Azure Functions
- Create a VM with a Template
- Create a VM with PowerShell
- Create a VM using CLI
- Implement Azure Key Vault
- Secure Network Traffic
- Manage Access with RBAC
- Manage Resource Locks
- Implement Resource Tagging
- Create an Azure Policy
- Explore the Trust Center
- Use Azure Pricing Calculator
- Use the Azure TCO Calculator
- Access Azure Preview Features
- Create VM of Linux Image
- Open a Support Request

7

Azure Administrator [AZ-104]



- Azure Administration
- Azure Governance, Compliance
- Virtual Networking
- Inter-site Connectivity
- Network Traffic Management
- Azure Virtual Machines
- Azure Storage
- Identity

Course Breakdown

- Azure Monitoring
- Data Protection
- Serverless Computing
- AZ PowerShell, Cloud Shell, CLI & ARM Templates

Hands-On Lab:

- Pay-as-you-go subscription
- Install IIS Server in a Virtual Machine
- Implement Azure Policy
- Create RG, VNet & Subnet, VM, Extra Subnet
- Configure Network Security Group
- Create Private DNS
- Point to Site in Azure
- Configure VNet Peering in Azure
- Configure Azure Availability Set and Azure Load Balancer
- Deploy Azure App Service and Traffic Manager
- Create an Application Gateway
- Filter Network Traffic using Network Security Group (NSG) & ASG
- Generate SSH Keys
- Create an Azure Bastion Host
- Create an Azure Snapshot
- Create Container, Manage Storage Account via Storage Explorer, Access Keys, and SAS Keys
- Create an Unmanaged Disk VM and Managed Data Disk
- Disk Migration From On-Premises Server to Azure
- Configure Azure File Share and File Sync
- Configure Azure Blob Lifecycle Management and Object Replication
- Configure Role-Based Access Control In Azure
- Create Custom RBAC Roles
- Azure Monitoring Using Log Analytics
- Configure Azure Network Watcher
- Backup of Azure VM into Azure Backup Vault

Course Breakdown

- Backup of an On-Premise Server into an Azure Backup Vault
- WebApps Creation With 2 Deployment Slots
- Configure Azure Container Service
- Configure Azure Kubernetes Service
- Create Resource Group and Virtual Machine via Cloud PowerShell
- Authenticate to Azure Tenant via PowerShell
- Create an Azure managed disk by using Azure PowerShell
- Create a Resource group and Virtual Machine using Azure CLI
- Create and Deploy ARM templates using Azure Portal

8

AWS Solution Architect Associate



- Security Management in AWS
- Object Storage Options
- Designing Computing Environment
- Load Balancer, Route53 & Auto Scaling
- Networking & Monitoring Services
- Database Server and Analytics
- Application & Messaging Services
- Config Management and Automation
- Architecting on AWS

Hands-On Lab:

- Install and Configure AWS CLI
- AWS Identity & Access Management (IAM)
- Enable Multi-Factor Authentication
- AWS KMS – Create & Use
- IAM Power User
- Creating S3 Bucket, Uploading & Accessing Files, and Hosting Website
- S3 Cross-Region Replication
- S3 Lifecycle Management on S3 Bucket
- Create and Manage EBS Volumes & Snapshots
- Attach & Mount EBS Volume to EC2 Instance

Course Breakdown

Hands-On Lab:

- Create Windows File Systems Using Amazon FSx
- Create and Mount Elastic File System (EFS) on EC2 Instances
- SSH into EC2 Linux Instance via Username & Password
- AWS Elastic IP
- Create Elastic Load Balancer & Autoscaling
- Register a Domain Name for Free
- Map DNS Using Route 53
- Create Custom Virtual Private Cloud
- Enable CloudTrail and Store Logs in S3
- Setting Up AWS Config to Assess, Audit & Evaluate AWS Resources
- Create & Query with Amazon DynamoDB
- Configure a MySQL DB Instance via Relational Database Service (RDS)
- Create a Redis Cache & Connect It to an EC2 Instance
- Visualize Web Traffic Using Kinesis Data Streams
- Amazon Athena
- Send an Email Through AWS SES
- Create and Update Stacks Using CloudFormation
- Deploy a Web Application Using Elastic Beanstalk

9

Azure Solution Architect [AZ-305]



- Design Authentication and Authorization
- Design a Governance Solution
- Design a Compute Solution
- Design a Network Infrastructure Solution
- Design Non-Relational Data Storage
- Design a Data Storage Solution
- Design a Data Integration Solution
- Design an Application Architecture
- Design a Solution to Log and Monitor
- Design a Business Continuity Solution

Course Breakdown

- Design a Migration Solution

Hands-On Lab:

- Implementing User-Assigned Managed Identities for Azure Resources
- Implementing Custom Role-Based Access
- Governance and Azure Blueprints & Policy
- Create a Virtual Machine with Custom VM Image
- Deploying and Testing Virtual Machine Scale Sets
- Deploy Containers to Azure Container Instances (ACI)
- Deploy Containers to Azure Kubernetes Service (AKS) Clusters
- Create & Manage a Storage Account & Access It
- Exploring Monitoring Capabilities of VMSS
- Network Watcher in Azure
- VM Replication via Azure Site Recovery
- Azure Resource Migration Across Regions

10

AWS Migration

- AWS Migration Strategy
- Application Migration to AWS
- Database Migration to AWS
- Data Migration to AWS
- Migrating Monolithic Applications

Hands-On Lab:

- Creating S3 Bucket, Uploading, Accessing Files
- Configuring Network Load Balancer
- Configuring Application Load Balancer
- Creating Custom Virtual Private Cloud
- Implementing AWS Migration Strategy
- Exploring Migration Strategies & Phases
- Deploying Infrastructure Using AWS CloudFormation
- Infrastructure Walkthrough for Application Migration
- Using Application Discovery Service

Course Breakdown

Hands-On Lab:

- AWS Athena & ADS Walkthrough
- Installing Replication & Configuring MGN
- Launch Templates, Cutover & Cleanup
- Application Migration to AWS – Phase 1
- Application Migration to AWS – Phase 2
- Migrating a Database to AWS
- Migrating Data to AWS
- Data Migration from RDS PostgreSQL to RDS MySQL
- Enabling Data Transfer Acceleration
- Breaking a Monolithic App into Microservices

11

AWS Security Specialty



- Security Fundamentals
- Identity & Access Management
- Logging & Monitoring
- Infrastructure Security
- Data Protection With VPC
- Incident Response

Hands-On Lab:

- Create IAM users, groups, roles, & Policies
- Create a Power User
- Enable MFA on the root account
- Create a user pool in AWS Cognito
- Working with AWS Organizations & Service Control Policies
- Working with Simple AD
- Setting Up AWS Config to Assess Audit & Evaluate AWS Resources
- Install CloudWatch Agent on EC2 Instance & View CloudWatch Metrics
- AWS Access Control Alerts with CloudWatch & CloudTrail
- Check AWS Resources in Trusted Advisor

Course Breakdown

Hands-On Lab:

- Check the Compliance status of the Security group
- Classify sensitive data in your environment using Amazon Macie
- Registering a Domain Name For Free
- Working with Route53 for Disaster Recovery
- Block web traffic with WAF
- Find vulnerabilities on an EC2 instance using Amazon Inspector
- Get started with Amazon ECS using Fargate
- Understanding & Configuring Layered Security in an AWS VPC
- Understanding Stateful vs Stateless Firewalls
- How to Set Up an AWS Site-to-Site (S2S) VPN Connection
- How to implement end-to-end VPC Endpoint service
- Access EC2 from Session Manager & send SSH logs to CloudWatch
- Using AWS Systems Manager for Patch Management
- Implementing AWS WAF with ALB to block SQL Injection, Geo-Location & Query string

12

Azure Security Engineer [AZ-500]



- Manage Identity and Access
- Implement Platform Protection
- Secure Data and Applications
- Manage Security Operations

Hands-On Lab:

- Role-Based Access Control
- Azure Policy
- Resource Locks
- Entra ID Synchronization with On-Premise Active Directory using Entra Connect (AD Connect)
- Network Security Groups and Application Security Groups
- Azure Firewall
- Configuring and Securing ACR and AKS

Course Breakdown

Hands-On Lab:

- How to Encrypt a Virtual Machine
- Create an Azure Bastion Host and Connect to a Windows VM
- Key Vault (Implementing Secure Data by Setting Up Always Encrypted)
- Securing Azure SQL Database
- Service Endpoints and Securing Storage
- Azure Monitor
- Microsoft Defender for Cloud
- Just-In-Time VM Access

13

AWS DevOps



- Introduction to DevOps
- SDLC Automation
- Automating Infrastructure with CloudFormation
- App Deployment – Elastic Beanstalk
- Configuration Management – OpsWorks
- Monitoring & Event Management in AWS
- High Availability, Fault Tolerance & Disaster Recovery
- Container Management Tools

Hands-On Lab:

- Create & Connect to Amazon EC2 Machine
- Install & Configure AWS CLI, Set up GIT, Node JS & SDK
- Working with AWS CodeCommit
- Build an Application with AWS CodeBuild
- Create a Simple Pipeline (CodePipeline)
- Create and Update Stacks using CloudFormation
- Deploy PHP App Using AWS OpsWorks Stacks
- Blue-Green Deployments Using Elastic Beanstalk
- Setting Up AWS Config to Assess Audit & Evaluate AWS Resources

Course Breakdown

Hands-On Lab:

- Build API Gateway with Lambda Integration
- Event-Driven Architectures Using AWS Lambda, SES, SNS, and SQS
- Configure Amazon CloudWatch to Notify Changes in EC2 CPU Utilization
- Amazon Athena
- Using AWS Systems Manager for Patch Management
- AWS Organizations and Service Control Policies
- Classify Sensitive Data in Your Environment Using Amazon Macie
- Amazon Inspector
- Visualize Web Traffic Using Kinesis Data Streams
- Block Web Traffic with WAF in AWS
- Configure a Load Balancer and Autoscaling on EC2 Instances
- Registering a Domain Name for Free
- Working with Route53 for Disaster Recovery
- Create & Manage Amazon Aurora Global Databases
- Process New Items with DynamoDB Streams and Lambda

14

Azure DevOps Engineer [AZ-400]



- Planning for DevOps
- Getting Started with Source Control
- Managing Technical Debt
- Configuring Azure Pipelines
- Implementing Continuous Integration
- Managing App Configuration and Secrets
- Continuous Integration with GitHub Actions
- Design and Implement Dependency Management
- Designing a Release Strategy
- Implementing Continuous Delivery with Azure Pipelines
- Implementing an Appropriate Deployment Strategy
- Infrastructure and Configuration using Azure Tools

Course Breakdown

Hands-On Lab:

- Register for an Azure DevOps Free Account
- Enable Parallelism in Azure DevOps
- Agile Planning and Portfolio Management with Azure Boards
- Version Controlling with Git in Azure Repos
- Sharing Team Knowledge using Azure Project Wikis
- Configuring Agent Pools and Understanding Pipeline Styles
- Enabling Continuous Integration with Azure Pipelines
- Integrating Azure Key Vault with Azure DevOps
- Implement GitHub Actions for CI/CD
- Package Management with Azure Artifacts
- Using Azure Monitor as a Release Gate
- Configuring Pipelines as Code with YAML
- Setting Up and Running Functional Tests
- Enable Dynamic Configuration and Feature Flags in Azure DevOps
- Azure Deployments using Bicep Templates
- Deploying Docker Containers to Azure App Service Web Apps using CI/CD
- Monitor Application Performance with Azure Load Testing
- Implement Security and Compliance in Azure DevOps Pipelines
- Managing Technical Debt with Azure DevOps and SonarCloud

15

AWS Certified Developer Associate



- User Management & Object Storage Options
- Designing and Computing (EC2 and EBS)
- Load Balancing, Autoscaling & Route 53
- AWS Integration & Messaging Services
- Serverless & Security
- CI/CD and Developer Tools
- Monitoring (CloudWatch, CloudTrail, X-Ray)
- Database Services (DynamoDB, RDS)
- Docker on AWS (ECS, ECR, Fargate)

Course Breakdown

16

Azure Developer [AZ-204]



- Creating Azure App Service Web Apps
- Implement Azure Functions
- Develop Solutions that Use Blob Storage
- Develop Solutions that Use Cosmos DB
- Implement IaaS Solutions
- User Authentication & Authorization
- Implement Secure Cloud Solutions
- Implement API Management
- Develop App Service Logic Apps
- Develop Event-Based Solutions
- Develop Message-Based Solutions
- Monitor and Optimize Azure Solutions
- Integrate Caching and Content Delivery

Hands-On Lab:

- Building a Web Application on the Azure Platform as a Service Offerings
- Retrieving Azure Storage Resources and Metadata Using Azure Storage SDK for .NET
- Constructing a Polyglot Data Solution
- Deploying Compute Workloads by Using Images and Containers
- Authenticating to and Querying Microsoft Graph Using MSAL and .NET SDKs
- Accessing Resource Secrets More Securely Across Services
- Creating a Multi-Tier Solution by Using Services in Azure
- Publishing and Subscribing to Event Grid Events
- Asynchronously Processing Messages Using Azure Storage Queues
- Monitoring Services That Are Deployed to Azure
- Enhancing a Web Application Using the Azure Content Delivery Network

Projects

1

AWS Three-Tier Web Application

In the AWS Three-Tier Web Application project, the focus is on building a robust architecture for high-performance web applications. Beyond the core components, consider implementing AWS Lambda functions or EC2 instances for the application tier, ensuring flexibility in handling various workloads. Explore options for data caching using Amazon ElastiCache to enhance application response times. Additionally, integrate AWS CloudWatch for monitoring and logging to maintain visibility into the application's health and performance, and implement AWS Key Management Service (KMS) for robust encryption of sensitive data..

2

Migration From On-Premise to AWS (Migrate your Application, Data, and database on AWS using the AWS Application Migration Service)

In the Migration From On-Premise to AWS project, extend the discussion to include considerations for disaster recovery and high availability. Implement AWS Route 53 for domain management and consider utilizing AWS Elastic Beanstalk for simplified application deployment and management. Leverage AWS Cost Explorer and AWS Budgets for effective cost management during and after migration. Integrate AWS CloudTrail to maintain an audit trail of API calls, providing enhanced security and compliance. Lastly, emphasize the importance of ongoing optimization for cost and performance post-migration, utilizing AWS Trusted Advisor for recommendations.

Projects

3

Break a Monolithic Application into Microservices with AWS Copilot, Amazon ECS, Docker, and AWS Fargate

The Break a Monolithic Application into Microservices project emphasizes the importance of designing well-defined APIs to facilitate communication between microservices. Utilize AWS CloudWatch for comprehensive monitoring and tracing of microservices to identify and troubleshoot performance bottlenecks. Implement AWS Lambda for serverless microservices where applicable, taking advantage of event-driven architectures. Explore the use of AWS Functions for orchestrating complex workflows between microservices, enhancing the overall efficiency of the application.

4

Deployment of Super Mario on Kubernetes using Terraform

This project focuses on deploying a containerized version of the Super Mario game application on a Kubernetes cluster using Terraform for infrastructure as code. The process includes defining the Kubernetes resources, such as pods, services, and deployments, in Terraform configuration files. Terraform scripts are used to provision the Kubernetes cluster, and Helm charts may be utilized for managing Kubernetes applications. The goal is to automate the deployment process, ensuring repeatability and consistency across different environments.

Projects

5

Deploy Netflix Clone Application on Kubernetes

This project involves deploying a Netflix clone application on a Kubernetes cluster. The Netflix clone is a microservices-based application that includes various components like user authentication, content streaming, and a recommendation engine. Each component is containerized and deployed as a separate service in the Kubernetes cluster. The project includes setting up Kubernetes manifests for deployments, services, and ingress controllers. CI/CD pipelines may be implemented using tools like Jenkins or GitLab CI to automate the deployment process. The objective is to achieve scalability, high availability, and efficient resource management for the application.

6

Microsoft Entra ID (Azure Active Directory) Synchronisation to on-premises Active Directory using Entra Connect

Moving from on-premises to cloud is chosen by many companies. The first thing to move to the cloud is Active Directory, which stores information about objects (users, computers) on the network. So here we will work on how we can migrate more Active Directory to Azure.

7

Site-to-Site Connection using Azure Portal

In old times, application was deployed on in-house servers, and later came the cloud. So many companies moved entirely to the Cloud. But some remained in their premises. Some decided to keep some of their data inside on-premise and some on the cloud, and then connected both of them according to the management of both. So here we will see how the connectivity between the cloud and an on-premises server works.

Projects

8

Deployment of 3-Tier Architecture in Azure

In this project, we focus on deploying a full-fledged 3-tier architecture on Microsoft Azure. A 3-tier architecture separates an application into three logical layers: the presentation tier, which is the front-end interface users interact with (typically a web application); the application tier, which contains the business logic and handles the processing; and the data tier, which manages data storage, usually through a database. This structured approach enhances scalability, security, and maintainability. By leveraging Azure services for each layer, this project demonstrates how to build a robust, cloud-native solution aligned with industry best practices.

9

Deploying a multi-container application to AKS

Containers are isolated units of software that contain everything that an application needs to run, including the code, runtime, system tools, and libraries.
Here we will deploy these multiple containers inside a service AKS provided by Azure

10

Migration from On-Premise to Azure

Since companies are migrating from on-premises servers to the cloud because of on-premises disadvantages and cloud advantages, here we will understand how the migration is done

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