**AWS Course Curriculum**

**Module 1:**

* Introduction to Cloud Computing
* Introduction to AWS & Azure Cloud Computing
* Understanding differences between On-premises and Cloud architecture.
* Understanding AWS Regions & Availability Zones.
* Understanding IP Addressing & Subnetting.
* Understanding Shared Infra Structure and Isolation in AWS Cloud.

**Module 2:**

* What is a VPC(Virtual Private Cloud)?
* VPC Architecture and Internal working of VPC.
* Design and Deploy Virtual Private Cloud.
* Create Subnets, Internet gateway, Routing, Security Groups and deploy EC2 machine with Key Pair.

**Module 3:**

* What is VPC Peering?
* Single & Multi-Region VPC Peering.
* Configure Intra VPC and Inter-VPC Peering.
* Real time use cases of AWS VPC Peering.
* Problems with VPC Peering and solutions.

**Module 4:**

* What is Network Address Translation?
* Configuring a NAT Gateway.
* Securing inbound connectivity with NAT Gateway.
* Understanding VPC Endpoints.
* Testing the use case with VPC End Points.

**Module 5:**

* How to monitor & securing VPC traffic?
* What is a Security Group(SG)?
* What is Network Access Control List (NACL)?
* Differentiate  SG vs NACL?
* Testing Security Group & NACL

**Module 6:**

* Overview of VPN Connectivity between AWS and On-Prem DC?
* What is a Virtual Private Gateway(VPG)?
* Creating a Virtual Private Gateway and establish VPN Connection?
* Testing the VPN Connectivity between  On-Premises and AWS on private networks.
* Introduction to Software OpenVPN.
* Configuring OpenVPN.

**Module 7:**

* Discussing VPC Peering issues.
* What is a Transit Gateway?
* Configuring Transit Gateway.
* Connecting multiple VPC using Transit Gateway.

**Module 8:**

* Introduction to EC2 Instances and deployment options.
* EC2 Metadata, Variable Creation and AMI Creation
* EC2 Launch Templates, Spot Instances & Reservations.
* Introduction to Elastic Block Storage(EBS) and Instance Store.
* Creating and configuration EBS Storage.
* Understanding AWS Snapshots.
* Performing EBS  backup using Snapshots and Life Cycle Manager

**Module 9:**

* Introduction to Application & Network Load Balancer.
* Difference between Targets Groups and Load Balancer.
* Deploy and Configure Network Load Balancer and perform load balancing.
* Simulate Network Load Balancing Scenarios.
* Deploy and configure Application Load Balancing.
* Simulate Path-Based load balancing using multi-target groups.
* SSL Certificate configuration using AWS Certificate Manager and 3rd Party Certificate Authorities.
* Integrating NLB and ALB with Route53 Zones.

**Module 10:**

* Introduction to EC2 Auto Scaling
* Creating Custom AMI for Auto Scaling
* Creating Launch Configuration and Auto Scaling Groups
* Deploy the machines behind NLB and perform CPU stress testing
* Simulate Auto Scaling Scenarios

**Module 11:**

* Introduction to AWS Systems Manager
* Using SSM RUN command for EC2 configuration Management.
* Using SSM session manager for EC2 console access.
* Overview on SSM Patching and Automation

**Module 12:**

* Introduction to AWS Simple Storage Service(S3)
* Creating S3 buckets, versioning, static hosting and log configuration
* Creating bucket policies for granular S3 items access
* Creating Bucket wide replication and Life Cycle Polocies.
* Introduction to Elastic File System (EFS)
* Creating EFS between AZs and testing data consistency.
* Introduction to Storage Gateway and Deploying it.
* Introduction to AWS Glacier and creating vaults.
* Introduction to FSx and AWS Backup

**Module 13:**

* Introduction Databases and SQL vs NoSQL
* Deploy MySQL RDS Multi-AZ Database
* Create a new DB on RDS and alter the data.
* Perform Failover and Failback of RDS Database
* Introduction to DynamoDB
* Create a Serverless application using DynamoDB, API Gateway & AWS Lambda.
* Introduction to AWS RedShift
* Create RedShift Cluster and upload data , query the data.
* Introduction to ElastiCache

**Module 14:**

* Introduction Cloudwatch, Dashboards, Alarms,
* Cloud Watch Logs and Schedules with Lambda
* Infra as a Code(IaaC) with Cloudformation and version with GitHub
* AWS AP & Resource audit with Cloud Trial & AWS Config.
* Automation with OpsWorks and Automated deployment with Aws Elastic BeanStalk.
* Working with Trusted Advisor, Service Catalog, License Manager & Personal Health Dashboard.

**Module 15:**

* Introduction to AWS IAM (Identity & Access Management)
* Creating Users, Roles, Groups and Security Policies.
* Restricting User Access and Cross Account Roles.
* Deploy AWS  AD Directory Service, Create AWS Organization.
* Integration AWS Active Directory Service with Single Sign On.
* Introduction to AWS Resource Access manager(RAM), Inspector and Guard Duty.
* Understanding Cognito, KMS, Macie, CloudHSM & WAF.

**Module 16:**

* Introduction AWS Certificate Manager
* Creating SSL Certificates in ACM and Importin 3rd Party certificates with ACM.
* Create Route 53 domain and Application Load Balancer.
* Import SSL certificates to Load Balancer and convert HTTP to HTTPS
* Configuring Route53 Failover Policies.
* Introduction to CloudFront.
* Configuring S3 Static Website with CloudFront.
* Introduction to AWS Direct Connect and Global Accelerator.

**Module 17:**

* Introduction to Container Services.
* Installing and configuring Docker.
* Understand Docker Hub and download images.
* Creating containers on Docker pushing images to Docker Hub.
* Introduction to ECR and ECS.
* Creating a repository in ECR and uploading the images
* Create ECS Cluster with EC2 Machines.
* Creating Task Definitions for deploying containers.
* Deploy Tasks and Services on ECS Cluster.

**Module 18:**

* AWS migration overview
* Deploying AWS Service Migration Service.
* Integrate SMS with VMware vSphere environment.
* Create replication job for copying On-prem machine to AWS.
* Introduction to Database Migration Service (DMS).
* Overview of migration a MySQL to RDS using DMS.
* Introduction of AWS Migration Hub.

**Module 19:**

* Introduction to AWS Developer Tools.
* Create code repository and version control with CodeCommit.
* Understanding AWS CodeBuild.
* Building the Code from CodeCommit to WAR file using Code Build.
* Deploying Code with AWS Code Deploy.
* Creating Code pipelines and integrating with GitHub.
* Understanding the CI/CD process.
* Introduction to SNS/SES/SQS & Step Functions.

**Module 20:**

* Introduction to Automation & Configuration Tools.
* Introduction to Terraform.
* Understanding Terraform Vs CloudFormation.
* Deploying & Destroying AWS environment with Terraform.
* Introduction to Packer.

**Module 21:**

* Introduction to Ansible & Puppet Configuration Tools.
* Installing Ansible and run Ad-Hoc Commands.
* Creating a Playbook and executing it.
* Installing Puppet master and client.
* Creating manifest for user creation and testing it.

**Module 22:**

* Overview of AWS Data Analytics.
* Understanding EMR, CloudSearch, ElasticSearch
* Understanding ETL on Athena & Glue.

**Module 23:**

* Understanding AWS Lambda.
* Creating functions using Python in Lambda and understanding contexts and events.
* Introduction to Boto Library and integrating with Lambda.
* Integrating AWS Lambda with other AWS Services.

**Module 24:**

* Day-to-Day Activities of AWS Admin.
* AWS Environment Security Best Practices.
* AWS project explanation.