**AWS Course Syllabus**

**Linux Fundamentals**

**Installation and Initialization:**

* Installation, Package Selection
* Framework of a Kickstart File, Command line
* Introduction to Bash Shell
* System Loading, Starting the Boot Process: GRUB

**Boot and Package Management:**

* Configuring services to run at boot
* Securing single-user mode (SU login)
* Shutting down and rebooting the system
* RPM Package Manager, Installing and Removing Software, Updating a Kernel RPM
* Yum Command set, mount packages by using yum
* Apt-get command set, Apt-cache package administration.

**User Administration:**

* Understanding different types of groups and creation of groups
* Creation of users in different groups
* Understanding Passwd, Shadow Files
* Understanding password aging
* Creation of quotas for users, groups and file systems
* Understanding users security files
* The different commands for Monitoring the users
* TROUBLESHOOTING
* Automation of jobs – Cron, at

**Run levels:**

* Understanding the different types of run-levels
* Understanding different types of shutdown commands
* Understanding run control scripts
* Understanding the different types

**Overview of the Service Protocols:**

* FTP
* DHCP
* DNS
* Apache
* Samba
* LVM

**AWS Solution Architect – Professional Level Certification**

**Cloud Computing**

* Introduction to Cloud Computing
* Why Cloud Computing?
* Benefits of Cloud Computing
* Types of Cloud Computing
* Public Cloud
* Private Cloud
* Hybrid Cloud
* Community Cloud
* Software as a Service
* Platform as a Service
* Horizontal vs vertical scaling
* Cloud Computing Issues
* Security
* Costing Model

**What is virtualization?**

* Virtualization and cloud computing
* Types of virtualizations
* Virtualization terminologies
* Hypervisor
* Benefits
* Vendors

**Let’s jump into AWS World**

* Introduction to AWS Elastic computing
* Introduction to the AWS products
* Regions and Availability Zones
* Signing up for AWS
* AWS Free usage tier
* Introduction AWS management console

**EC2Instance**

* Understanding AMI
* Launching your first AWS instance
* On-demand Instance pricing
* Reserved Instance pricing
* Spot instance pricing
* Setting up security
* Security groups
* Choosing & creating a new AMI
* Public and Private IP’s
* Deploying a new instance from the created AMI
* Key Pairs
* Elastic Ip’s

**Load Balancing (High available architecture)**

* Introduction to Scaling
* ELB (Elastic Load Balancer)
* CLB (Classic Load Balancer)
* NLB (Network Load Balancer)
* Components and types of load balancing

**Auto-scaling (Fault tolerance architecture)**

* Get Started with Auto Scaling Using the Console
* Maintain a Fixed Number of Running EC2 Instances
* Dynamic Scaling
* The lifecycle of autoscaling
* Policies of autoscaling

**EBS (Elastic Block Storage)**

* Create EBS volumes.
* Delete EBS Volumes
* Attach and detach EBS volumes.
* Mounting and unmounting EBS volume
* Creating and deleting snapshots
* Creating volumes from snapshots S3(Simple Storage Service)

**Storage available in AWS Cloud**

* S3 durability and redundancy
* S3 Buckets
* S3 Uploading Downloading
* S3 Permissions
* S3 Object Versioning
* S3 Lifecycle Policies
* Storage Gateway
* Import Export
* S3 Transfer Acceleration
* Glacier storage
* AWS Backup

**Cloud Front**

* Use of cloud front
* Creating a cloud front distribution
* Hosting a website of cloud front distribution
* Implementing restrictions
* Configuring origins and behaviour’s

**Route53**

* Creating Zones
* Hosting a website
* Understanding routing policies
* Weighted simple and failover policies

**Identity Access Management (IAM)**

* Creating Users and Groups
* Applying policies
* Password Policy
* Roles
* IAM SSO

**AWS Security Management**

* Security Practices for Cloud Deployment
* AWS Responsibilities and Securities
* Cloud Trail
* Trust advisor
* Inspector – Configuration and remediating the found vulnerabilities.
* KMS
* Macie
* Resource Access Manager
* Security Hub
* Secret Manager
* WAF And Shield
* Certificate Manager
* Cognito
* Detective

**Amazon Virtual Private Cloud (VPC)**

* Introduction to Amazon Virtual Private Cloud (VPC)
* VPC Advantages
* Default and Non-default VPC
* Components of VPC
* Direct Connect
* Describe, create, and manage Amazon Virtual Private Cloud
* Amazon VPC, Private Subnet, and Public Subnet
* AWS Networking, Security Groups, and Network ACLs
* Configuration and management of VPN connectivity
* Subnet and Subnet Mask
* Global Accelerator

**Relational Database Service (RDS)**

* Introduction to RDS
* Different database services of AWS: Amazon RDS, Dynamo DB, Redshift etc.
* Configuring the database
* Configuring backups
* Configuring the maintenance windows
* Connecting to the database

**Dynamo DB**

* Creating a dynamo dB
* Configuring alarms
* Adding data manually

**Management and Governance Tools**

* Cloud watch dashboard
* Configuring Monitoring services
* Setting thresholds
* Configuring actions
* Creating a cloud watch alarm
* Getting statistics for ec2 instances
* Monitoring other AWS services
* Configuring Notifications
* Integrating cloud watch with Autoscaling
* Cloud Trail
* Artifacts
* Audit Manager

**Application Services**

* What is SNS
* Creating a topic
* Create subscription
* Subscribed to the subscription
* SQS
* SES
* Amazon EventBridge
* Lambda and Elastic Beanstalk

**AWS Troubleshooting**

* Troubleshooting EC2 instance
* Troubleshooting using Cloud watch
* Troubleshooting using ELB
* Troubleshooting by using Cloud trail
* Troubleshooting by using Cloud front
* Auto recovery
* Troubleshooting Bad requests, unauthorized access, Forbidden and Timeout issues

**AWS Architecture and Design**

**Backup and Disaster Recovery**

* How to manage Disaster Recovery and Backups
* Best Practice for DR and Backups
* AWS High Availability Design
* Overview of Disaster Recovery
* Disaster recovery strategy
* AWS Elastic Disaster Recovery (AWS DRS)
* On-premises to AWS
* Other Cloud vendor to AWS
* AWS Region to AWS Region

**Data Migration**

* Data sync
* Snow Family

**Server Migration**

* App Discovery Service
* App Migration Service

**Database Migration**

* DMS

**Automation**

* SSM
* Automation with Lambda

**Containers (Microservices Architecture)**

* Elastic Container Registry
* Elastic Container Service
* Elastic Kubernetes Service

**Cost effectiveness (Optimal resource utilisation)**

* AWS Best Practices (Cost +Security)
* AWS Calculator & Consolidated Billing
* Reservation
* Savings plan
* Auto clean – Sandbox environment
* Auto stop/start of servers
* Auto remove unused resources
* AWS Cost Explorer
* AWS Budgets
* AWS Marketplace Subscriptions
* Market Subscription
* Billing Conductor

**DevOps**

* An understanding of DevOps and the modern DevOps toolsets
* The ability to automate all aspects of a modern code delivery and deployment pipeline using:
* Source code management tools –Git, BitBucket and GitLab
* Build tools – Apache Ant, Maven
* Continuous Integration Tools – Jenkins, AWS Code commit/pipeline/deploy
* Configuration management tools – Chef, Puppet, Ansible
* Monitoring tools – Nagios, Cloud watch
* Composing and deploying IaC templates – Terraform and Cloud Formation
* Different types of tests (for example, unit tests, integration tests, acceptance tests, user interface tests, security scans)

• Reasonable use of different types of tests at different stages of the CI/CD pipeline

* Running builds or tests when generating pull requests or code merges (for example, AWS CodeCommit, CodeBuild)

• Running load/stress tests, performance benchmarking, and application testing at scale

• Measuring application health based on application exit codes

• Automating unit tests and code coverage

• Invoking AWS services in a pipeline for testing