FUTURE PROOF LEARNING - NEP ALIGNED
www.mycreditcourses.com

PROFESSIONAL CERTIFICATE IN CLOUD COMPUTING

DURATION: 240 Hours

TOTAL CREDITS: 8

COURSE SYLLABUS

Objective

The Professional Certificate in Cloud Computing aims to equip learners with the skills to design, deploy, and manage cloud-based solutions using leading platforms like AWS and Azure. Participants will gain expertise in cloud infrastructure, security, automation, and optimization, enabling them to implement scalable and secure cloud environments for businesses and enterprises.

Exit Profile

- Understand Cloud Computing Fundamentals
- Gaining Hands-on Experience with Leading Cloud Platforms
- Developing Skills in Cloud Infrastructure & Networking

Career Path

- Technical Support Engineer (Cloud)
- Aws Technical support
- Developer in AWS
- Azure Architect
- Cloud manager

Course Outline

Course Name:	Professional Certificate in Cloud Computing	Duration:	240 H
Module	Topic	Duration	Total Duration
Module 1	Cloud Computing	1 H	10 H
	Cloud Environment Architecture	2 H	
	Cloud Computing Models	3 H	
	Cloud Characteristics	1 H	
	Deployment Models in Cloud Computing	3 H	
Module 2	Amazon Web Services	15 H	110 H
	Simple Storage Service (S3)	15 H	
	Relational Databases	23 H	
	AWS Global Infrastructure	2 H	
	Introduction To Network Switches & Virtual Private Cloud	15 H	
	Amazon Dynamodb With Python	20 H	
	AWS Lambda And API	20 H	
Module 3	Microsoft Azure	10 H	120 H
	Azure Virtual Networks	20 H	
	Arm Virtual Machines	25 H	
	Azure App Services - Web Apps	15 H	
	Managing Data In Azure SQL Database	20 H	
	Azure Storage	20 H	
	Managing Azure with Windows PowerShell	10 H	

Course In Detail

Module – 1

CLOUD COMPUTING

- Introduction to Cloud Computing
- Cloud Environment Architecture
- Cloud Computing Models
- Cloud Characteristics
- Deployment Models in Cloud Computing
- Advantages and Disadvantages of Cloud Computing
- Cloud Computing Job Roles.

Module - 2

AMAZON WEB SERVICES
INFRASTRUCTURE & NETWORKING

- Introduction to Amazon Web Services
- AWS Global Infrastructure
- Introduction to Network Switches & Virtual Private Cloud
- IP Addressing in AWS
- Understanding AWS Security Groups

STORAGE

- Introduction to Block & Object storage mechanism
- Introduction to Elastic Block Store - EBS
- EBS Snapshots
- EBS Volume Types
- Instance Store Volumes
- Introduction to Simple Storage Service (S3)
- Features of S3

SIMPLE STORAGE SERVICE (S3)

- S3 101
- S3 security
- S3 policies
- S3 encryption
- Setup and Encryption on S3 socket
- CORS configuration

- CloudFront
- S3 Performance Optimization

RELATIONAL DATABASES

- Introduction to Relational Databases
- Creating our first database structure in MySQL

AMAZON DYNAMODB WITH PYTHON

- BigData
- Introduction to Dynamodb(setup, configurations, etc.)
- Background concepts (RDBMS.NoSQL,and JSON)
- Background Concept (JS, NodeJS. Python)
- Dynamodb basics
    - Overview
    - Terminologies comparison with SQL
    - DynamoDB Tables and Naming conversions
    - Data types
    - Consistency Models
    - Partitions
    - Indexes
- Python boto3 basics
- Working with DynamoDB using AWS console
- Working with DynamoDB using AWS CLI
- Working with DynamoDB using AWS SDK
- DynamoDB Data Modelling
- TTL un Dynamodb
- Global Tables in Dynamodb

DOMAIN NAME SYSTEM

- Introduction to DNS
- Understanding DNS Records
- Introduction to Route53

AWS LAMBDA AND API

- Getting started with AWS Lambda
- Introduction to API
- Understanding working of API
- Building our API with API Gateway

Module - 3

MICROSOFT AZURE

- Introduction to Azure
- Why, What and Benefits of Azure
- Azure Hosting Models
- Azure Services
- Subscribing to Microsoft Azure
- Azure Portals
- Azure Key Concepts
- Azure Resource Group
- Installing Microsoft Azure SDK

AZURE VIRTUAL NETWORKS

- Overview of Azure Networking
- Virtual Network Benefits
- Understanding Network Resources
- Create a VNet using Azure Portal
- Create a Subnet
- Setup Network Security Group
- Creating a Public IP Address
- Create Network Interface Card with public, and private IP addresses
- Creating a Virtual Machine
- Configure external and internal load balancing
- Understanding and Creating Availability Sets
- Azure Application Gateway
- Azure Traffic Manager
- User Defined Routes (UDRs),
- Understanding Azure DNS
- Design and implement a multi-site or hybrid network
    - Point-to-Site Network
    - Site-to-Site Network
    - ExpressRoute Solution

ARM VIRTUAL MACHINES

- Introduction
- About Virtual Machine Workloads
- Comparing VM with Web Apps and Cloud Services
- Create a Windows Virtual Machine using Portal / PowerShell / ARM Templates
- Deploy popular application frameworks by using Azure Resource Manager templates
- Understand and Capture VM Images
- Upload an on-premises VHD to Storage Account
- Deploy a New VM from the Captured Image

- Virtual Machine Scale Sets
- Virtual Machine Disk Types and VM Storage
- Virtual Machine Sizes in Azure
- Importing and Exporting Disks
- Configuring VM Security
- Perform configuration management
    - VM Extensions & VM Agents
    - Custom Script Extensions
    - Desired State Configuration (DSC)
    - Puppet or Chef

AZURE APP SERVICES - WEB APPS

- Introduction
- App Service - Application Types
- Deploy Web Apps
    - Deploying Web App directly from Visual Studio
    - Automate deployment from Dropbox and One Drive
    - Create, configure and deploy packages
    - Implement pre- and post-deployment actions.
- App Service plans.
    - Create App Service Plan
    - Migrate Web Apps between App Service plans.
    - Creating a Web App within an App Service plan
- Configuring Web Apps
    - Application Settings Configuration,
    - Database Connection Strings,
    - Configuring Handlers and Virtual Directories,
- Horizontal and Vertical Scaling of a Web App
- Configure auto-scale
- Change the size of an instance
- Retrieve Diagnostics data
- View Streaming Logs
- Configure endpoint monitoring
- Configuring Alerts
- Configure diagnostics
- Use remote debugging
- Monitor Web App resources
- Azure Application Insights
- App Service plans.
    - Configuring Web Apps
    - Configure a custom domain name
    - Enable SSL for your custom domain
- Understanding Deployment Slots and Rollback deployments.
- Configure Web Apps for scale and resilience

- Azure Traffic Manager to Scale out Globally
- Monitoring, Debugging and Diagnosis

MANAGING DATA IN AZURE SQL DATABASE

- Introduction/Overview of SQL Database.
- Comparing SQL Azure Database to IAAS / On-Premises SQL Server.
- Creating and Using SQL Server and SQL Database Services.
- Azure SQL Database Tools.
- Migrating on premise database to SQL Azure.
- Planning the Deployment of an Azure SQL Database
- Elastic Pools.
- Monitoring Azure SQL Database
- Configure SQL Database Auditing
- Manage Business Continuity
- Export and Import of Database
- Backup and Recovery options in SQL Database
- Active GEO-Replication
- Long Term Backup Retention
- Pricing Tier Comparisons.

AZURE STORAGE

- Importance of Azure Storage Service
- Creating Storage Account
- Storage Replication Models
    - Locally Redundant Storage
    - Zone Redundant Storage
    - Geo Redundant Storage
    - Read Access Geo Redundant Storage
- Implement Azure storage blobs
    - Read data, change data, set metadata on a container, store data using block and page blobs, stream data using blobs, access blobs securely, implement async blob copy, configure a Content Delivery Network (CDN), design blob hierarchies, configure custom domains, scale blob storage
- Azure Table Storage
- Azure Queue Storage
- Azure Files Storage
- Manage Access
    - Create and manage shared access signatures, use stored access policies, regenerate keys.
    - Configure and use Cross-Origin Resource Sharing (CORS)
- Configure diagnostics, monitoring and analytics o
    - Set retention policies and logging levels, analyze logs
- Implementing Content Delivery Network