		AWS Cloud Practitioner	**Course Type**	**LTP**
Course Code:		CSE3015	**Credits**	**4**
Prerequisite:	Nil			

Course Objectives:
1. To understand of cloud computing concepts using AWS console
2. To design and implement effective networking solutions and implement robust security measures to protect AWS resources and data.
3. To analyze proficiency in managing storage solution and database on the AWS platform.
4. To evaluate pricing models and support options to make informed decisions on resource allocation and budgeting.

Course Outcomes (CO):

At the end of the course, students should be able to

CO1. To learn the concepts of basic cloud computing and AWS console. [KL-3]
CO2. To learn the architecture of cloud data management and the business processes. [KL-3]
CO3. To configure and manage AWS networking, content delivery and security in cloud. [KL-4]
CO4. To utilize AWS management tools and services to monitor, troubleshoot and automate task in AWS environment. [KL-4]
CO5. To learn the concept of ready-made cloud data management environments. [KL-3]

Correlation of COs with POs

CO \PO	CKL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
PKL		3	5	6	5	6	3	3	3	2	2	3	3	3	3	4
CO1	3	3	3	2	3	2	3	3	3	2	2	3	3	3	3	2
CO2	3	3	3	2	3	2	3	3	3	2	2	3	3	3	3	2
CO3	4	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3
CO4	4	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	2	3	2	3	3	3	2	2	3	3	3	3	2

CO	Topics to be discussed	Hrs.
CO1	**Cloud Computing Terminology** – Cloud Computing Foundation, Essential Characteristics, Architectural Overview, Components of cloud computing, Cloud Delivery Model, Deployment Model, Clous Service Model – SaaS, IaaS, PaaS. **AWS Console** – AWS Cloud History, AWS Global Infrastructure – AWS Regions, Availability Zones, Data Centers, and Edge Locations, and Tour of the AWS Console.	**10**
CO2	**Compute** – Amazon EC2, Launching EC2 Instances using Putty, Types of Instances, AWS Elastic Beanstalk, Local Zone, **Storage** –Amazon EBS, AWS backup – Snapshots, Amazon S3, Storage Class overview, S3 Glacier, and Storege gateway. **Serverless** – AWS Lambda and AWS Fargate.	**12**
CO3	**Networking & Content Delivery** –Route 53, Amazon API Gateway, Amazon VPC, VPC Subnets, Route Tables, Security Groups, NAT Gateway. **Security Identification and Compline** – AWS Identity and Access Management (IAM), AWS Certificate Manager (ACM) and AWS Key Management Service (KMS).	**12**

CO4	**Database** – Amazon Relational Database Service (RDS), Create an Amazon RDS, DynamoDB, Create an DynamoDB Table and Amazon Redshift **Developing Tools** – Overview of CloudFormation, Beanstalk Overview, AWS cloud Development Kit (CDK), Code Pipeline (CI/CD). **Management & Governance** – AWS ELB, Create an Application Load Balancer, Amazon EC2 Auto Scaling and Autoscaling Group, CloudTrail, CloudWatch	**12**
CO5	**Application Integration** –Amazon SQS, SNS and SES, AWS Step Function and Amazon Connect. **Cloud Financial Management** – AWS Billing Conductor, Budgets, Cost and Usage Report, Cost Explore and AWS Marketplace.	**12**
	Guest Lecture on Contemporary Topics	**02**
	Total Lecture	**60**

Mode of Teaching and Learning:

Flipped Classroom, Activity-Based Teaching/Learning, Digital/Computer-based models, wherever possible to augment lecture for practice/tutorial and minimum 2 hours lectures by industry experts on contemporary topics.

Mode of Evaluation and assessment:

The assessment and evaluation components may consist of unannounced open book examinations, quizzes, student's portfolio generation and assessment, and any other innovative assessment practices followed by faculty, in addition to the Continuous Assessment Tests and Term End Examinations.

Text Books:

1. Sequeira, Anthony J. *AWS Certified Cloud Practitioner (CLF-C01) Cert Guide*. Pearson IT Certification, 2019.
2. Pandey, Prashant, and Satyam Kumar. *AWS Certified Cloud Practitioner CLF-C01*. Packt Publishing, 2022.

Reference books:

1. Carter, Daniel. "AWS certified cloud practitioner: exam guide:(Exam CLF-C01): all-in-one." *(No Title)*.

Indicative list of Experiments:

1. Launch an EC2 instance using the AWS Management Console by Select appropriate instance types, AMIs, and configurations. Connect to the EC2 instance using SSH or Remote Desktop.
2. Create an S3 bucket and Configure bucket policies, versioning, and encryption. Upload and download objects to/from the S3 bucket.
3. Create a Lambda function using Python or Node.js and Configure event triggers and test the Lambda function.
4. Register a domain name using Amazon Route 53 and Upload HTML, CSS, and JavaScript files to the S3 bucket to host the website.
5. Configuring a Virtual Private Cloud (VPC) in AWS, including setting up subnets, route tables, internet gateways, NAT gateway and security groups.
6. RESTful API using Amazon API Gateway using AWS Lambda.
7. Launch an RDS instance by Select a database engine (e.g., MySQL, PostgreSQL, SQL Server) and Configure database settings, including storage, security, and backups.
8. Create an Identity and Access Management (IAM) in AWS, including creating users, groups, roles, and policies, and managing access permissions to AWS resources.
9. Creating and managing AMIs and snapshots in AWS and Attach EBS on a running instance.
10. Create CloudWatch alarms to monitor metrics EC2 instances, RDS databases, and ELB load balancers and set up dashboards to visualize performance metrics.

Recommendation by the Board of Studies on	*16.04.2024*
Approval by Academic council on:	*23.05.2024*
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