Course: BTech **Semester:** 5

Prerequisite: Basics of Cloud Computing

Course Objective: Master Foundational AWS Cloud Skills

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
					Internal Marks			External Marks		
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	T	CE	P	T	P	
2	0	0	-	2	20	20	-	60	-	100

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Introduction to Cloud Computing and AWS** What is Cloud Computing? . Key Benefits of Cloud Computing, Cloud Service Models, Cloud Deployment Models, What is AWS?, The AWS Global Infrastructure.	20	6
2	**Networking Services** Networking Basics,Virtual Private Cloud, subnets, route tables, security groups. VPC Security,DNS:AWS Route 53,Cloud Front,Build Your VPC in AWS and Launch a Web Server.	15	5
3	**Compute Services** IaaS, Virtual machines in the cloud,Amazon EC2, Elastic Load Balancing,AutoScaling, Launch an Amazon EC2 Serverless computing, AWS Lambda,Characterstics of AWS Lambda,Create and Configure a Lambda Function.Paas-AWS Elastic Beanstalk, Deploy a sample application to Elastic Beanstalk	20	5
4	**Storage Services** Object Storage, Block Storage, and File Storage.,AWS Storage Services: Amazon S3,Various Storage classes of S3, Amazon EFS, and Amazon EBS,Create An amazon EBS volume. Hosting a Static Website using S3.	15	5
5	**AWS Architecture and Database Service** AWS Well-Architected Framework Design Principles .Relational Database Service, MySQL, PostgreSQL, SQL Server, Amazon RDS (Relational Database Service), Amazon Aurora, Amazon DynamoDB, Amazon Redshift, Launch an Amazon RDS DB instance.	15	5
6	**AWS Security , Monitoring, Scaling, and Billing** Identity and Access Management, users, groups, roles, policies,AWS IAM. Implement IAM Policies.Monitoring resources: AWS CloudWatch. Elastic Load Balancing ,Auto Scaling, , Cloud Economics and Billing, Scale and Load balance Your Architecture	15	4

Reference Books

1.	**Cloud Computing: Concepts, Technology & Architecture** By Thomas Erl, Ricardo Puttini, and Zaigham Mahmood
2.	**AWS Certified Cloud Practitioner Study Guide: CLF-C01 Exam** By By Ben Piper and David Clinton | McGraw Hill
3.	**Amazon Virtual Private Cloud (VPC) Documentation**
4.	**AWS Security: Identity and Access Management, Data Protection, and Application Security** By By Mark Wilkins and Bryan Beausejour | Addison-Wesley Professional
5.	**AWS Certified SysOps Administrator – Associate (SOA-C02) Certification Guide** By Mark Wilkins and Sander van Vugt | Packt Publishing
6.	**Docker on AWS: Build, Ship, and Run Distributed Applications** By By Sean P. Kane and Karl Matthias | O'Reilly Media

Course Outcome

After Learning the Course the students shall be able to:
1. Understand fundamental cloud computing concepts and the AWS platform. 2. Configure and manage virtual networks (VPC) in AWS. 3. Deploy and manage virtual machines (EC2 instances) in the AWS cloud. 4. Utilize AWS storage services (S3, EBS) for various storage needs 5. AwS Database services and Monitor AWS resources and applications