

Branch Name:	Bachelor of Computer Application (BCA)
Program Code:	CS101
Course Title:	Cloud Administrator – II
Course Code :	17-CAE403-4C
Pre-requisite Course:	Foundations of Cloud Computing

Course Objective (CO):

- To develop advanced cloud administration and deployment skills.
- To understand real-time cloud infrastructure management.
- To enable students to deploy scalable applications.
- To introduce cloud security, monitoring, and cost optimization.
- To prepare students for entry-level cloud job roles.

Teaching and Examination Scheme:

Teaching Scheme Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
2	-	4	4	25	25	25	25	100

Course Contents:

Sr. No.	Topics	Total Hours	Weightage (%)
1.	Basics of Cloud Computing: What is Cloud Computing? Cloud architecture overview Review of IaaS, PaaS, SaaS (practical use) Regions, Availability Zones Cloud providers comparison (AWS, Azure, GCP) Pricing and billing basics.	10	20
2.	Compute & Virtualization Management Advanced Virtual Machine configuration Instance types and scaling basics Auto-scaling concept (basic) Load balancing (intro) Managing VM lifecycle	10	20
3.	Storage & Database Services Object, Block, File storage (advanced usage) Cloud database basics (RDS / SQL / NoSQL intro) Data backup and recovery strategies Data lifecycle management	10	20
4.	Networking in Cloud Virtual Private Cloud (VPC) basics IP addressing and subnets Security groups and firewall rules Internet Gateway concept Basic network troubleshooting	10	20
5.	Cloud Security, Monitoring & Deployment Identity and Access Management (IAM) Role-based access control Monitoring tools (basic dashboard usage) Logging and alerts Deployment of web app (mini project)	8	20

Course Learning Outcomes (CLO):

At the end of this course, the student would be able

- CLO.1 Manage cloud infrastructure and services effectively.
- CLO.2 Deploy and manage scalable applications on cloud.
- CLO.3 Configure networking and security in cloud environment.
- CLO.4 Implement storage, backup, and recovery solutions.
- CLO.5 Monitor performance and optimize cloud resources.
- CLO.6 Execute real-world cloud projects independently.

List Text Book:

1. Cloud Computing Concepts – Rajkumar Buyya
2. Fundamentals of Cloud Computing – Simplified Edition

List of Reference Book:

1. AWS Certified Cloud Practitioner Guide
2. Microsoft Azure Fundamentals
3. Google Cloud Platform Basics.

E-Resource / Web Links:

- <https://aws.amazon.com>
- <https://azure.microsoft.com>
- <https://cloud.google.com>
- <https://www.tutorialspoint.com>
- <https://www.geeksforgeeks.org>

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Create and manage advanced VM instance
2. Configure VM with different instance types
3. Setup auto start/stop and scaling basics
4. Create and configure storage (object/block)
5. Upload and manage large files
6. Setup cloud database (basic configuration)
7. Backup and restore database/data
8. Create Virtual Network (VPC)
9. Configure subnet and IP addressing
10. Setup security group and firewall rules
11. Create IAM users and roles
12. Monitor resource usage using dashboard
13. Setup alerts and notifications
14. Deploy dynamic website (basic)
15. Mini Project: Full cloud deployment (VM + Storage + Network)

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
CLO1	H	M	L	L	M		L					L	H	M	L	
CLO2	H	M	H	L	M	M		H					M	H		
CLO3	H	H	M	M	M	M	L						H	H	M	
CLO4	H	M	M	L	M	L		M					H	M		
CLO5	M	H	M	M	H				L	M			M	H	L	M
CLO6	H	M	H	M	H	L	M	M					H	H		H

H:High, M:Medium, L:Low



In Effect from Academic Year 2023-24