

Subject Code: 09CT0605
Subject Name: Cloud Computing
Diploma Year – III (Semester VI)

Objective:

This course is intended to analyse the basics of cloud computing, and make aware students with diversified technologies working for cloud architecture. Course will be focusing on architecture, service models, privacy & security in the cloud.

Credits Earned: 5 Credits

Course Outcomes: After learning this course, students should be able to,

1. Understand and analyse the architecture of Cloud (Analyse).
2. Identify and apply deployment and management options of AWS Cloud Architecture (Apply).
3. Design architectures to decouple infrastructure and reduce interdependencies (Create).
4. Monitor Cloud-Based Resources, creating dashboards, Creating Alarms and configuring notification alerts (Create).

Pre-requisite of course: Operating System, Computer Networks

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term work (TW)	
3	0	2	4	50	30	20	25	25	150

Contents:

Sr No	Course content	Total Hrs.
1	Introduction of Cloud & Amazon Web Service Introduction of cloud computing, What is Virtualization , Infrastructure as a Service(IaaS), Software as a Service(SaaS), Platform as a Service(PaaS), Advantages of Cloud, AWS history , Dashboard, AWS Overview, Architecture Discussion	08



2	Identity & Access Management IAM Overview and Policies, IAM Users, Groups, Access Key & Secret Access Key, MFA, Report	07
3	Elastic Cloud Computing (EC2) Amazon EC2 Overview, Elastic Block Storage(EBS), Amazon Machine Image(AMI), Introduction to EC2 Instance Types, Security Group, Public & private IP Overview, Amazon EBS & Snapshot, AWS CLI	07
4	Amazon Simple Storage Service (S3) Simple Storage Service (S3), S3 Object Storage and Buckets, Web Hosting , Glacier, Versioning	08
5	Cloud Watch Monitoring & SNS Monitor Cloud-Based Resources, creating dashboards, Creating Alarms and configuring notification alerts	04
6	Route 53 & Databases DNS Records, Website Hosting, Relational Database System, DB engine & Instance details, Setup and Connect MySQL database	08
	Total	42 hrs.

References:

- Judith Hurwitz, R Bloor, M.Kanfman, F.Halper “Cloud Computing for Dummies”, Wiley India Edition, First Edition
- Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, ”Cloud Computing: Principles and Paradigms”, Wiley Publication,2011
- Tim Mather, SubraKumara swamy, Shahed Latif, “Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance”, O’ReillyMedia Inc, 2009
- Mickey Iqbal 2010, “ IT Virtualization Best Practices: A Lean, Green Virtualized Data Center Approach”, MC Press
- Frank H. P. Fitzek, Marcos D. Katz, “Mobile Clouds: Exploiting Distributed Resources in Wireless, Mobile and Social Networks”, Wiley Publications, ISBN: 978-0-470-97389-9, Jan 2014.

Suggested Theory distribution:



The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyse	Evaluate	Create
5%	15%	20%	20%	0%	40%

Instructions:

- a) Students can refer to any reference material for tutorials/assignments.
- b) Assignments will be evaluated based on a quiz conducted at the end of every Unit.

Suggested List of Experiments:

Students have to work on given case studies for following tasks to understand practical implementation of lectures outcome.

1. Creating Amazon EC2 instances with Microsoft Windows & Linux Server
2. Launch a Web Server (IIS & Apache)
3. Working with Amazon Elastic Block Store (EBS)
4. Introduction to AWS Identity and Access Management (IAM)
5. Deploy a Web Application on AWS
6. CloudWatch Monitoring, Creating Dashboard, Setting up Alarms and Notifications

Supplementary Resources:

- NPTEL online course: https://onlinecourses.nptel.ac.in/noc17_cs23/preview
- MOOC: <https://www.edx.org/micromasters/cloud-computing>
- Coursera: <https://www.coursera.org/specializations/cloud-computing>
- AWS Academy: AWS Cloud Computing Architecture at <https://aws.amazon.com/training/awsacademy/cloud-computing-architecture/>