

Course Code	Course Title	L	T	P	C
1156EC423	CLOUD SECURITY	0	0	0	2

a) Course Category

Independent Learning - Self Learning Course

b) Preamble

This course guides us to create AWS account, planning AWS resources for cloud systems, create AWS EC2 instances, access them and configure the popular LAMP web services with MySQL database

c) Prerequisite

Nil

d) Related Courses

Network security, cloud computing

e) Course Outcomes

Upon the successful completion of the course, students will be able to

CO Nos.	Course Outcomes	Knowledge Level (Based on Revised Bloom's Taxonomy)
CO1	Understand the basics of cloud computing using AWS EC2 as an example, including the resources provided by the public cloud, the pricing structures related to the resource usages in computing, storage, and networking services, and their trade-offs, the basic operations of setting up account.	K2
CO2	Recognize how to sign up AWS account, create/configure/manage AWS EC2 instances, access them and configure the Linux operating system, Apache web server, MySQL database, and PHP server side scripting support.	K2
CO3	Interpret the concepts of how to set up a domain for an organization/company using AWS Route53 service, create DNS entries for an instance, and understand the advanced Geoproximity Routing With Traffic Biasing.	K2
CO4	Understand the concepts of utilizing the AWS load balancer support to create load balancing clusters to	K2

	provide high available services based on round robin and customize rules with header content.	
CO5	Understand the basic aspects of disaster recovery such as availability groups and disaster recovery for private systems.	K2

f) Course Content

UNIT I CLOUD COMPUTING FUNDAMENTALS

Cloud computing basics-Cloud Computing with AWS-AWS Cloud EC2 Service-AWS Account Sign Up-AWS Resource Planning-Basic Cloud Service Models-Cloud Service Interruption and Their Impact-AWS EC2-AWS Resource Features

UNIT II SECURE SERVER CONFIGURATION AND INTEGRATED ACCESS MANAGEMENT

Secure Access to AWS Instance-Configure LAMP Server Software Packages-Identity and Access Management-AWS Command Line Interface - AWS CLI to clone and manage instances-Microsoft Azure an AWS Alternative-Biomedical Cloud Computing With Amazon Web Services-AWS Command Line Interface

UNIT III UTILIZE ROUTE53 DNS

Setup Domain with Route53-Register DNS Entries on Route53-Using Route 53 Amazon's DNS Service for the Cloud-Routing Traffic to an Amazon EC2 Instance

UNIT IV AWS LOAD BALANCER

AWS Load Balancing-Create AWS Load Balancing Cluster-Diagnose AWS Load Balancing-Elastic Load Balancing Deep Dive and Best Practices-Articles on Issues with AWS ELB-Detecting Issues with Load Balancers-Survey Of Techniques And Challenges For Load Balancing In Public Cloud

UNIT V DISASTER RECOVERY SOLUTIONS

Introduction-Availability groups-Disaster recovery for private systems-Web application firewall-Additional web application firewall rule

g) Learning Resources

Online Resources

1. <https://www.coursera.org/learn/cloud-computing-security>
2. <https://www.edx.org/course/cloud-computing-security-umuc-usmx-cc617x-1>