Course Code	Course Title	L	T	P	C
1156EC422	CLOUD NETWORKING	0	0	0	2

a) Course Category

Independent Learning - Self Learning Course

b) Preamble

This course introduces a new way to supplement the current consumption and delivery model for IT services based on the Internet. It also explores the basic knowledge of cloud networking, routing and congestion control, network virtualization, performance metrics and some of its benefits

c) Prerequisite

Nil

d) Related Courses

Data Communication Networks, Software defined networking

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 networking applications running in data centers and the traffic patterns.	K2
CO2	Recognize the concepts of routing and switching for physical & virtual machines and congestion control.	K2
CO3	Understand the basics of management and sharing of network infrastructure in cloud data centers.	K2
CO4	Interpret the basics of inter-data center WAN connectivity, content distribution networks, end-user Internet connectivity, and application interactions with the network.	K2
CO5	Understand the concepts of enabling cloud networking to lower IT costs &boost IT productivity.	K2

f) Course Content

UNIT I CLOUD NETWORKING BASICS

Introduction-Application and Traffic Patterns- Application and Traffic Patterns Discussion- Physical Structure- Physical Structure Discussion

UNIT II ROUTING AND CONGESTION CONTROL

Host Virtualization- Host Virtualization Discussion- Routing and Traffic Engineering- Routing and Traffic Engineering: Packet Forwarding on Multiple Paths- Congestion Control- Congestion Control Discussion

UNIT III NETWORK MANAGEMENT AND SHARING

Software-Defined Networking Architecture - Multi-Tenant Data Centers: The Challenges-Network Virtualization Case Study: VL2-Network Virtualization Case Study: NVP

UNIT IV CLOUD NETWORKING ECO SYSTEMS

Inter-Data Center Networking: The Problem- Inter-Data Center Networking: Cutting-edge Solutions-CDNs-Client Connectivity-Coping with Network Performance: Application-layer Tweaks for Lower Latency, Video Streaming Adaptation in the Face of Variable Bandwidth

UNIT V BENEFITS OF CLOUD NETWORKING

Cloud service applications-state of cloud services market-fears and concerns-Aerohive Networks-Aerohive key cloud capabilities

g) Learning Resources

Reference Books

1. https://www.coursera.org/learn/cloud-networking
2. https://www.aerohive.com/wpcontent/uploads/AerohiveWhitepaperCloudNetworking.pdf
3. https://www.slideserve.com/noma/aerohive-networks