SVKM's NMIMS Deemed-to-be University
Mukesh Patel School of Technology Management & Engineering

Program: B Tech/MBA Tech Information Technology, B Tech/MBA Tech (Computer Engineering), B Tech Artificial Intelligence, B Tech EXTC, MBA Tech EXTC				**Semester:** VII,VIII	
Course : Cloud Computing				**Code:**	
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA) (Marks - 50)**	**Term End Examinations (TEE) (Marks- 100)**
2	2	0	3	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Computer Networks

Course Objective

The course is designed to enable students to understand state-of-the-art cloud computing technologies and applications. This course covers basic models, architecture, virtualisation. It also delves into concepts, processes and best practices needed to secure cloud information. It emphasises on business models, risk management and service management aspects of cloud.

Course Outcomes

After completion of the course, student would be able to-

1. Classify the layers of cloud reference model based on their significance
2. Address security concerns and orchestration in cloud environment

Detailed Syllabus

Unit	Description	Duration
1	**Introduction to Cloud** Essential Characteristics of Cloud, Cloud Service Models, Cloud Deployment Models, Cloud Service Brokerage, Cloud Reference Model, Considerations for building Cloud Infrastructure	5
2	**Physical Layer** Compute System, Storage System Architecture, Network Connectivity	5
3	**Virtual Layer** Virtual Layer Functions, Virtualization Software, Resource Pool and Virtual Resources	5
4	**Control Layer** Control Layer Functions, Control Software, Resource Optimization Techniques	5
5	**Cloud Security** Threats, Security Mechanisms, IAM solutions, Security Algorithms	5
6	**Orchestration** Container Approach, Docker Container, Items in a Dockerfile, Kubernetes Pods, Kubernetes Terminology, Kubernetes Cluster Model, Kubernetes Features	5
	Total	**30**

Text Books

1. Douglas E. Comer, *The Cloud Computing Book: The Future of Computing Explained*, 1st Edition, Taylor and Francis, 2021

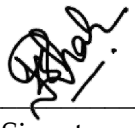
2. Tim Mather, *Security and Privacy Trends in Cloud Computing and Big Data,* 1st Edition, Taylor and Francis, 2022.

Reference Books

1. Umang Singh, San Murugesan and Ashish Seth, *Emerging Computing Paradigms Principles, Advances and Applications*, Wiley India, 2022.
2. Sanjiva Shankar Dubey, *Cloud Computing and Beyond: A Managerial Perspective*, 2nd Edition, Wiley, 2021.
3. John R. Vacca, *Cloud Computing Security Foundations and Challenges*, 2nd Edition, CRC Press, 2021.
4. Brij Gupta, Gregorio M, Dharma P Agarwal and Deepak Gupta, *Handbook of Computer Networks and Cyber Security*, 1st Edition, Springer, 2020.

Laboratory Work

8 to 10 Programming exercises based on the syllabus.



Signature
(Head of the Department)