

SEMESTER	3
Paper Number	MCMSE 4304
Paper Title	Cloud Computing
No. of credits	3
Theory / Composite	Theory
No. of periods assigned	Th: 3
Name of faculty member(s)	
Course description / objectives	<p>On completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. gain knowledge of the essential concepts of cloud computing, the development of the paradigm, its applications, advantages and problems of the present and the future 2. develop a foundational understanding of cloud software deployment considerations and cloud administration strategies 3. understand various CPU, memory, and I/O virtualization techniques, as well as Software Defined Networks (SDN) and Software Defined Storage, that are used to provide software, computing and storage services on the cloud (SDS) 4. gain practical skills of cloud computing platforms like AWS 5. learn the threats being faced by cloud environments and the essential security measures needed to ensure safeguards
Syllabus	<p>Cloud Computing Basics: Overview - Definition, Characteristics, Advantages, Disadvantages</p> <p>Cloud Deployment Models: Public Cloud Model, Private Cloud Model, Hybrid Cloud Model, Community Cloud Model</p> <p>Cloud Technologies: Virtualization, Service-Oriented Architecture (SOA), Grid Computing, Utility Computing</p> <p>Cloud Computing Architecture: Front-End and Back-End, Management Software, Deployment Software, Network, Server, Storage</p> <p>Cloud Service Models: Infrastructure-as-a-Service, Platform-as-a-Service, Software-as-a-Service, Identity-as-a-Service, Network-as-a-Service</p> <p>Cloud Solutions: Microsoft, Google, Amazon Web Service (AWS), Cisco, IBM (features, deployment, advantages and limitations)</p> <p>Virtualization: Need for virtualization, Types of hardware virtualization, Desktop virtualization, Server Virtualization, Hypervisor, Virtual machines, Virtualization Solutions, Concept of load balancing, High Availability (HA) in virtualization environment, Virtualization Tools - VMWARE, Oracle Virtualbox</p> <p>Cloud Security: Planning, Access Control, Auditing, Authentication, Authorization, Encryption, File encryption, Secure communications, Web application firewall, Data center security, Data center availability, Regular backups, Professional best practices, CSA stack model, Brokered Cloud Storage Access</p>
Reading/Reference Lists	<ol style="list-style-type: none"> 1. Cloud Computing: Concepts, Technology & Architecture (The Pearson Service Technology Series from Thomas Erl) by Thomas Erl, Ricardo Puttini, Zaigham Mahmood 2. Handbook of Cloud Computing: Basic to Advance research on the concepts and design of Cloud Computing 1st Edition by Anand Nayyar, BPB Publications 3. Cloud Computing Black Book, by Kailash Jayaswal, Jagannath 4. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter, TATA McGraw- Hill
Evaluation	<p>Total – 50</p> <p>Theory – CIA – 10 Semester Examination – 40</p>