



Marwadi University

Master of Science (Information Technology)

Semester III

Subject Code: 02MS0305

Subject Name: (Elective-II) Cloud Computing (CC)

Learning Objectives:

- To provide an understanding of the basic concepts of parallel and distributed computing and their role in Cloud Computing.
- To understand the importance of Cloud computing for higher throughput and availability
- To make aware about various Cloud platforms
- To study different applications of Cloud and Cloud management techniques

Prerequisites:

- Basics of Computer Networks
- Basics of Operating Systems

Unit	Course Content	Hours
1	Cloud Computing Basics: <ul style="list-style-type: none">• Cloud Computing (NIST Model) Introduction to Cloud Computing, History of Cloud Computing, Cloud service providers• Properties, Characteristics & Disadvantages Pros and Cons of Cloud Computing, Benefits of Cloud Computing, Cloud computing vs. Cluster computing vs. Grid computing	04
2	Cloud Infrastructure: <ul style="list-style-type: none">• Cloud Architecture, Cloud Computing Reference Model• Service Models (XaaS)<ul style="list-style-type: none">▪ Infrastructure as a Service(IaaS)▪ Platform as a Service(PaaS)▪ Software as a Service(SaaS)• Deployment Models<ul style="list-style-type: none">▪ Public cloud▪ Private cloud▪ Hybrid cloud▪ Community cloud	04
3	Infrastructure as a Service(IaaS): <ul style="list-style-type: none">• Introduction to IaaS IaaS definition, Introduction to virtualization, Different approaches to virtualization, Hypervisors, Machine Image, Virtual Machine(VM) Case Studies Platform as a Service(PaaS): <ul style="list-style-type: none">• Introduction to PaaS What is PaaS, Service Oriented Architecture (SOA)	09

	<p>Case Studies</p> <p>Software as a Service(SaaS):</p> <ul style="list-style-type: none"> • Introduction to SaaS Web Services, Web OS Case Studies 	
6	<p>Cloud Security</p> <p>CIA importance, Introduction to Cloud Security, Cloud Security Services, Security threats with cloud, Risk Management</p>	06
4	<p>Virtualization Fundamentals:</p> <p>Virtualization in Grid, Virtualization in Cloud, Virtualization in Cloud Security</p>	06
5	<p>Cloud Storage:</p> <p>Overview of Cloud Storage, Cloud Stores, Data Management for Cloud Storage</p>	04
7	<p>Case Studies on Cloud Simulators :</p> <p>3 tools – 5 hours each</p> <ol style="list-style-type: none"> 1. CloudSim 2. Eucalyptus 3. OpenNebula <p>Introduction to Dockers</p> <p>Introduction to DevOps</p>	15

Text Book:
1. “Cloud Computing A practical approach for learning and implementation” by A.Srinivasan and J. Suresh Pearson Publications.
Reference Books:
<ol style="list-style-type: none"> 1. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010 2. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley, 2011 3. Cloud Computing: Principles, Systems and Applications, Editors: Nikos Antonopoulos, Lee Gillam, Springer, 2012 4. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Ronald L. Krutz, Russell Dean Vines, Wiley-India, 2010.