

MCA 506 CLOUD INFRASTRUCTURE AND SERVICES

L	T	P	Cr
3	0	2	4.0

Course Objective: To learn the concepts of cloud infrastructure and services and its implementation for assessment of understanding the course by the students.

Introduction and Evolution of Computing Paradigms: Overview of Existing Hosting Platforms, Cluster Computing, Grid Computing, Utility Computing, Autonomic Computing, mesh, Introduction to Cloud Computing, Cloud Computing history and evolution, practical applications of cloud computing for various industries, economics and benefits of cloud computing.

Cloud Issues and Challenges: Cloud computing issues and challenges like Security, Elasticity, Resource management and scheduling, QoS (Quality of Service) and Resource Allocation, Cost Management, Big Data.

Data Center : Classic Data Center, Virtualized Data Center (Compute, Storage, Networking and Application) , Business Continuity in VDC

Cloud Computing Architecture: Cloud Architecture model, Types of Clouds: Public Private & Hybrid Clouds, Cloud based services: IaaS, PaaS and SaaS

Classification of Cloud Implementations: Amazon Web Services, The Elastic Compute Cloud (EC2), The Simple Storage Service (S3), The Simple Queuing Services (SQS), Google AppEngine - PaaS, Windows Azure, Aneka, A Comparison of Cloud Computing Platforms .

Virtualization: Virtualization, Advantages and disadvantages of Virtualization, Types of Virtualization: Resource Virtualization i.e. Server, Storage and Network virtualization, Migration of processes, VMware vCloud – IaaS

Cloud based Data Storage: Introduction to Map Reduce for Simplified data processing on Large clusters, Design of data applications based on Map Reduce in Apache Hadoop, Task Partitioning, Data partitioning, Data Synchronization, Distributed File system, Data Replication , Shared access to weakly consistent to data stores, introduction to Python.

Laboratory Work: To implement Cloud, Apache and Hadoop framework and related services. To understand various concepts practically about virtualization, data storage. To implement few algorithms with the help of MapReduce and some high level language.

Recommended Books:

1. Raj Kumar Buyya, James Broberg, AndrezejM.Goscinski, Cloud Computing: Principles and paradigms, 2011
2. Michael Miller, Cloud Computing, Que Publishing 2008
3. Cloud Computing: A practical Approach Anthony Velte, Toby Velte and Robert Elsenpeter by Tata McGrawHill
4. Judith Hurwitz, Robin Bllor, Marcia Kaufman, F Halper, Cloud Computing for dummies, 2009.