

Course Title : **Cloud Computing**
Course Code : COM XXX.3
Credit : 3
Class Load : 3 hours
Evaluation :

	Theory	Practical	Total
Sessional	50	-	50
Final	50	-	50
Total	100	-	100

Course Objective:

The main objective of this course covering the concept of three main domains of Cloud Systems: Cloud Systems, Cloud applications and paradigms, and challenge in cloud.

- 1. Introduction (6 Hrs)**
Defining the Cloud, The Emergence of Cloud Computing, Grid Computing or Cloud Computing, Types of Cloud, Cloud Computing Paradigms and Services, Components of Cloud Computing, Ethical issues in Cloud Computing, Cloud Vulnerabilities, and Characteristic of Cloud Computing.
- 2. Networks in Cloud Computing (6 Hrs)**
Parallel Computing, Distributed Systems, Network Architecture for Cloud: Data Center Network, Data Center Interconnect Network and Internet, Foundations of Cloud Computing Infrastructures: Virtualization Technology, Automation in Cloud Computing, Network Architecture for Hybrid Deployment, Concept of Autonomic Computing, Open Source Software in Data Centers.
- 3. Roles of Grid Computing and Autonomic Computing in Cloud Computing (6 Hrs)**
Grid Computing, Interaction of Models of Grid and Cloud Computing, Distributed Computing in Grid and Cloud, Layered Models and Usages Patterns in Grid and Cloud, Interoperability in Grids and Clouds, Autonomic Computing, System Models of Autonomic Computing, Roles and Importance of Autonomic Computing in Cloud, Autonomic Cloud Computing.
- 4. VT in Cloud Computing (3 Hrs)**
Introduction to Virtualization Technology, Hypervisors (ESXi), Hypervisor Networks, Virtual Machines, VM management and configurations, Cloud Data stores, Cloud Computing and Virtualization, Academic Environment and Virtualization.
- 5. Cloud Service Models and Cloud Infrastructure (6 Hrs)**
Jericho Cloud Cube Model, Infrastructure-as-a-Service, Platform-as-a-Service, Software-as-a-Service, Communication-as-a-Service, Database-as-a-Service, Cloud Computing at Amazon, Amazon Web Services, Cloud Computing from the Google Perspective, Window Azure and Online Services, Open Source Software Platforms for Private Clouds.

Practical:

There shall be application lab exercises covering all features of Cloud System

References:

1. Cloud Computing: Principle and Paradigms, Rajkumar Buyya and William Voorsluys, James Broberg, Wiley Publication Inc.
2. Cloud Computing: Theory and Practice, Dan C. Marinescu, MK Publications.
3. Cloud Application Architecture, George Reese, O'Reilly Media Inc.
4. Cloud Computing for Dummies, Judith Hurwitz, Robin Bloor, Marcia Kufman, Wiley Publication Inc.
5. Handbook of Cloud Computing, Borko Furht, Armando Escalante, Springer, 2010.
6. Cloud Computing and SOA Convergence in Your Enterprise, a Step by Step Guide, David S. Linthicum, Addison Wesley Publication.