Cloud Computing

1.1 Course Number: CS374

1.2 Contact Hours 3-0-0 Credits: 9

1.3 Semester-offered: 5

1.4 Prerequisite: Operating Systems, Programming

1.5 Syllabus Committee Member:

2. **Objective:** The objective of this course is to learn basics of cloud computing, key concepts of virtualization, different Cloud Computing services and security services

3. **Course Content:**

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction	Overview of Distributed Computing, Cloud introduction and overview, Different types of cloud services Deployment models, Advantages and Disadvantages, Companies in the Cloud	7
2	Infrastructure as a Service (IaaS)	Introduction, CPU Virtualization – Hyper Storage Virtualization – SAN, ISCSI, Network Virtualization - VLAN	7
3	Platform/Soft wa re as a Service (PaaS / SaaS)	From IaaS to PaaS, Introduction PaaS properties and Characteristics PaaS Techniques: File System GFS, HDFS, PaaS: Programming Model – Map Reduce Storage System , BigTable, HBase	10
4	Software as a Service (SaaS)	Web Service, Applications and Web Portal, Security in Cloud Environment	9
5	Case Studies	Amazon EC2, Google App Engine, IBM Clouds, Microsoft's Windows Azure	7
		Total	**40**

4. **Readings**

4.1 Textbook: *Raj Kumar Buyya, "Cloud Computing: Principles and Paradigms",*

Wiley Press.

4.2 Reference books:

i. *Barrie Sosinsky, "Cloud Computing Bible", Wiley India.*
ii. *Borko Furht and Armando Escalante, "Hand Book of Cloud Computing", Springer.*

5 Outcome of the Course: Students will have:

- learn how to use Cloud Services.
- implement Virtualization
- implement Task Scheduling algorithms.
- Apply Map-Reduce concept to applications.
- build Private Cloud