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CP5073 CLOUD COMPUTING TECHNOLOGIES L T P C
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OBJECTIVES:

- To understand the concept of cloud and utility computing.
- To understand the various issues in cloud computing.
- To familiarize themselves with the lead players in cloud.
- To appreciate the emergence of cloud as the next generation computing paradigm.
- To be able to set up a private cloud.

UNIT I INTRODUCTION 9+6

Introduction- Historical Development – Cloud Computing Architecture – The Cloud Reference Model – Cloud Characteristics –Cloud Deployment Models: Public, Private, Community, Hybrid Clouds- Cloud Delivery Models: IaaS, PaaS, SaaS – Open Source Private Cloud Software: Eucalyptus, Open Nebula, Open Stack.

UNIT II VIRTUALIZATION 9+6

Data Center Technology – Virtualization – Characteristics of Virtualized Environments - Taxonomy of Virtualization Techniques – Virtualization and Cloud Computing –Pros and Cons of Virtualization – Implementation Levels of Virtualization – Tools and Mechanisms: Xen, VMWare, Microsoft Hyper-V, KVM, Virtual Box

UNIT III CLOUD COMPUTING MECHANISM 9+6

Cloud Infrastructure Mechanism: Cloud Storage, Cloud Usage Monitor, Resource Replication – Specialized Cloud Mechanism: Load Balancer, SLA Monitor, Pay-per-use Monitor, Audit Monitor, Failover System, Hypervisor, Resource Cluster, Multi Device Broker, State Management Database – Cloud Management Mechanism: Remote Administration System, Resource Management System, SLA Management System, Billing Management System

UNIT IV HADOOP AND MAP REDUCE 9+6

Apache Hadoop – Hadoop Map Reduce –Hadoop Distributed File System- Hadoop I/O- Developing a Map Reduce Application – Map Reduce Types and Formats – Map Reduce Features– Hadoop Cluster Setup –Administering Hadoop.

UNIT V SECURITY IN THE CLOUD 9+6

Basic Terms and Concepts – Threat Agents – Cloud Security Threats –Cloud Security Mechanism: Encryption, Hashing, Digital Signature, Public Key Infrastructure, Identity and Access Management, Single Sign-on, Cloud Based Security Groups, Hardened Virtual Server Images.

TOTAL: 45 +30 = 75 PERIODS

OUTCOMES:

Upon completion of the course, the student will be able to

- Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
- Identify the architecture, infrastructure and delivery models of cloud computing.
- Explain the core issues of cloud computing such as security, privacy and interoperability.
- Choose the appropriate technologies, algorithms and approaches for the related issues.
- Facilitate Service Level Agreements (SLA).

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