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CP5092 CLOUD COMPUTING TECHNOLOGIES

DETAILED SYLLABUS

OBJECTIVES

- To understand the concepts of virtualization and virtual machines
- To gain expertise in server, network and storage virtualization.
- To understand and deploy practical virtualization solutions and enterprise solutions
- To gain knowledge on the concept of virtualization that is fundamental to cloud computing
- To understand the various issues in cloud computing
- To be able to set up a private cloud
- To understand the security issues in the grid and the cloud environment

UNIT I VIRTUALIZATION

Basics of Virtual Machines - Process Virtual Machines – System Virtual Machines –Emulation– Interpretation – Binary Translation - Taxonomy of Virtual Machines. Virtualization- Management Virtualization —— Hardware Maximization – Architectures – Virtualization Management – Storage Virtualization – Network Virtualization

UNIT II VIRTUALIZATION INFRASTRUCTURE

Comprehensive Analysis – Resource Pool – Testing Environment –Server Virtualization – Virtual Workloads – Provision Virtual Machines – Desktop Virtualization – Application Virtualization - Implementation levels of virtualization – virtualization structure – virtualization of CPU, Memory and I/O devices – virtual clusters and Resource Management – Virtualization for data centre automation.

UNIT III CLOUD PLATFORM ARCHITECTURE

Cloud deployment models: public, private, hybrid, community – Categories of cloud computing: Everything as a service: Infrastructure, platform, software- A Generic Cloud Architecture Design – Layered cloud Architectural Development – Virtualization Support and Disaster Recovery – Architectural Design Challenges - Public Cloud Platforms : GAE,AWS – Inter-cloud Resource Management

UNIT IV PROGRAMMING MODEL

Introduction to Hadoop Framework - Mapreduce, Input splitting, map and reduce functions, specifying input and output parameters, configuring and running a job –Developing Map

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Reduce Applications - Design of Hadoop file system –Setting up Hadoop Cluster - Cloud Software Environments -Eucalyptus, Open Nebula, Open Stack, Nimbus

UNIT V CLOUD SECURITY

Cloud Infrastructure security: network, host and application level – aspects of data security, provider data and its security, Identity and access management architecture, IAM practices in the cloud, SaaS, PaaS, IaaS availability in the cloud - Key privacy issues in the cloud –Cloud Security and Trust Management

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3. John W.Rittinghouse and James F.Ransome, "Cloud Computing: Implementation, Management, and Security", CRC Press, 2010.

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