

CLOUD COMPUTING

Credits: 4

Semester: VI

Subject Code: DS18601B

No. of Lecture Hours: 60

Objectives:

- To know what a distributed system is and to understand properties of distributed system.
- To implement basics, techniques and tools for Cloud Computing.
- To understand any kind of heterogeneous resources over a network using open standards.

Outcomes: Students will be able to

CO1: Understand distributed systems for cloud computing

CO2: Identify cloud servers, types and components

CO3: Analyse cloud architectural information in the present generation of market

CO4: Compare types of clients in the cloud and virtualization

CO5: Examine virtual machines the market and usage

UNIT – I

12hrs

Introduction to Distributed Systems:

1. Characterization of distributed systems: Introduction, Examples of Distributed Systems . 2

2. Resource sharing and Web – WWW

1

3. Challenges

1

4. System Models: Architectural Models

2

5. Network and Internetworking: Types of Networks

3

6. Networking Principles, Internet Protocols

3

UNIT – II

12hrs

Introduction to Cloud Computing:

1. Cloud Computing Overview - Introduction to Cloud Computing, Cloud Components, Infrastructure Services

2

2. Benefits – Scalability, Simplicity, Knowledgeable Vendors,
2

More Internal Resources, Security

3. Limitations - Your Sensitive Information, Applications Not Ready, Developing Your Own Applications, Features of Cloud Platform
3

4. System Models for Advanced Computing –Clusters of Cooperative Computing, Grid

Computing and Cloud Computing.
2

5. Software Systems for Advanced Computing-Service Oriented Software, Parallel and Distributed Programming Models with Introductory Details
3

UNIT – III

12hrs

Cloud Computing Architecture:

1. Introduction
1

2. The Cloud Reference Model: Architecture, Infrastructure and Hardware-as-a-service, Platform as a Service, Software as a Service
3

3. Types of clouds: Public Clouds, Private Clouds, Hybrid Clouds, Community Clouds 3

4. Economics of the Cloud
2

5. Open Challenges: Cloud Definition, Cloud Interoperability and Standards, Scalability and Fault Tolerance, Security, Trust and Privacy, Organizational Aspects
3

UNIT-IV

12hrs

Cloud Computing Technology:

1. Hardware and Infrastructure: Clients, Mobile, Thin, Thick
2

2. Local Clouds and Thin Clients: Virtualization in Your Organization: Why Virtualize? How to Virtualize, Concerns, Security
3

3. Server Solutions: Microsoft Hyper-V, VMware, VMware Infrastructure
2

4. Thin Clients: Sun, Hewlett Packard, Dell

3

5. Cloud Storage: Overview: The Basics, Storage as a Service, Providers, Security, Reliability, Advantages, Cautions

2

UNIT – V

12hrs

Virtualization:

1. Introduction and Characteristics of Virtualized Environments: Increased Security, Managed Execution, Portability

3

2. Taxonomy of Virtualization Techniques: Execution Virtualization, Other Types of Virtualization

3

3. Virtualization and Cloud Computing

2

4. Pros and Cons of Virtualization

1

5. Technology Examples: Xen: Paravirtualization, VMware: Full virtualization, Microsoft Hyper-V