

## **35271- CLOUD COMPUTING**

### DETAILED SYLLABUS

#### **UNIT I CLOUD COMPUTING BASICS**

1.1 Cloud computing overview – Origins of Cloud computing – Cloud components – Essential characteristics – on-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , measured service

1.2 Architectural influences – High-performance computing , utility and enterprise grid computing , Autonomic computing , Service consolidation , Horizontal scaling Web services , High scalability architecture.

1.3 Cloud scenarios - Benefits - scalability , simplicity , vendors , security. Limitations – Sensitive information , Application development – Security concerns -privacy concern with a third party , security level of third party , security benefits. Regularity issues – Government policies

#### **UNIT II CLOUD COMPUTING ARCHITECTURE & SERVICES**

2.1 Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model.

2.2 Software as a Service (SaaS): SaaS service providers – Web Services – Web 2.0 – Web Operating system -Google App Engine, Salesforce.com and google platform – benefits – Operational benefits, Economic benefits – Evaluating SaaS

2.3 Platform as a Service ( PaaS ): Cloud Plat form & Management – Computation & Storage - PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – services and benefits.

2.4 Infrastructure as a Service ( IaaS): IaaS service providers –Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level greement – recent developments – benefits.

2.5 Cloud deployment model : Public clouds – private clouds – community clouds – hybrid clouds - Advantages of Cloud computing.

#### **UNIT III Virtualization**

**3.1 Virtualization** : Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost – limitations

**3.2 Types of hardware virtualization:** Full virtualization - partial virtualization – para virtualization

**3.3 Desktop virtualization – Software virtualization – Memory virtualization – storage virtualization – data virtualization – network virtualization.**

**3.4 Microsoft Implementation – Microsoft Hyper V – VMware features and infrastructure – Virtual Box - Thin client**

#### **UNIT IV STORAGE MANAGEMENT**

**4.1 Storage Network:** Architecture of storage, analysis and planning. **Storage 4.2 NAS and FC SANs,** hybrid storage networking technologies (ISCSI, FCIP, FCoE), design for storage virtualization in cloud computing,

**4.3 File systems or object storage.**

#### **UNIT V SECURITY IN THE CLOUD**

**5.1 Understanding Cloud Security - Securing the Cloud - Security service boundary: CSA Cloud Reference Model - Securing Data – Brokered cloud storage access - Storage location and tenancy – Encryption**

**5.2 Cloud Computing Security Challenges - Security Policy Implementation – Policy Types- Virtualization Security Management - Virtual Threats**

#### **TEXT BOOK**

1 CLOUD SECURITY: A Comprehensive Guide to Secure Cloud Computing Ronald L. Krutz Russell Dean Vines Wiley Publishing, Inc

2 Cloud Computing A practical Approach 2008 Edition Cloud Computing A practical Approach Tata McGrawHill

3. Cloud Computing Bible Barrie Sosinsky Wiley Publishing, Inc.