PGDDS 508   **Cloud Computing**   **3(2+1)**

Objectives: To provide understanding of principles and concept of Cloud Computing. To make the students aware about Service Model with reference to Cloud Computing. To appreciate the role of Virtualization Technologies. To provide understanding of cloud security issues and solutions.

Unit I: Introduction to Cloud Computing: Overview, Roots of Cloud Computing, Layers and Types of Cloud, Features of a Cloud, Benefits and Disadvantages of Cloud Computing, Infrastructure Management, Infrastructure as a Service Providers, as a Service Providers, Challenges and Risks

Unit II: Cloud Architecture, Services and Applications: Exploring the Cloud Computing Stack, Connecting to the Infrastructure as a Service, Platform as a Service, Saas Vs. Paas, Application Frameworks, Software as a Service Cloud Deployment Public vs Private Cloud

Unit III: Abstraction and Virtualization: Introduction to Virtualization Technologies, Load Balancing Virtualization, Understanding Hyper visors, Understanding Imaging, Porting Applications, Virtual Machines Provisioning Manageability Virtual Machine Migration Services, Virtual Provisioning and Migration in Action

Unit IV: Cloud Infrastructure and Cloud Resource Management: Architectural Design of Compute and Storage Clouds, Layered Architecture Development, Design Challenges, Inter Cloud Management, Resource Provisioning and Platform, Cloud Management Products, Emerging Cloud Management Standards

Unit V: Cloud Security: Security Overview, Cloud Security Challenges and Risks, Software-Service Security, Cloud computing security architecture: Architectural Considerations, General Issues Securing the Cloud, Securing Security, Application Security, Virtual Machine Security, Identity Presence, Identity Management and Access Control, Identity Management and Access control Identity management, Access control, Security Storage Area Networks,

Unit VI: Cloud Based Case-Studies: Overview of Cloud services, Designing Solutions for the Cloud, Implement Integrate Solutions, Emerging Markets and the Cloud, Tools for Private Cloud: IaaS using Eucalyptus, PaaS on IaaS – AppScale

Reference Books

1. Cloud Computing: Principles and Paradigms by Rajkumar Buyya, James Broberg and Andrzej Goscinski. Wiley India Edition
2. Cloud Computing Bible by Barrie Sosinsky Wiley Publishing Inc., ISBN-13: 978-0470903568, ISBN-10: 0470903562
3. Mastering Cloud Computing by Rajkumar Buyya, C. Vecchiola & S. Thamarai Selvi McGRAW Hill Publication
4. Cloud Computing: Web Based Applications that Change the Way You Work and Collaborate Online by Miller Michael Pearson Education India

5. Cloud Computing – A practical Approach by Velte T., Velte A., Elsenpeter R. Tata McGraw Hill