Cloud Computing

Session 1: Introduction

1. Historical development, Vision of Cloud Computing.
2. Characteristics of cloud computing as per NIST, Cloud computing reference model.
3. Cloud computing environments, Cloud services requirements.
4. Cloud and dynamic infrastructure, Cloud Adoption and rudiments.
5. Overview of cloud applications: ECG Analysis in the cloud, Protein structure prediction,
6. Gene Expression Data Analysis, Satellite Image Processing, CRM and ERP, Social networking.

Session 2: Cloud Computing Architecture

1. **Cloud Computing Architecture:** Cloud Reference Model.
2. Types of Clouds, Cloud Interoperability & Standards, Scalability and Fault Tolerance,
3. **Cloud Solutions:** Cloud Ecosystem, Cloud Business Process Management, Cloud Service Management.
4. **Cloud Offerings**: Cloud Analytics, Testing Under Control, Virtual Desktop Infrastructure.

Session 3: Cloud Management and Virtualization Technique

1. Resiliency, Provisioning, Asset management, Concepts of Map reduce, Cloud Governance, High Availability and Disaster Recovery.
2. Virtualization: Fundamental concepts of compute, storage, networking, desktop and application virtualization.
3. Virtualization benefits, server virtualization.
4. Block and file level storage virtualization Hypervisor management software.
5. Infrastructure Requirements, Virtual LAN (VLAN) and Virtual SAN (VSAN) and their benefits.

Session 4: Cloud Security

1. **Cloud Security:** Cloud Information security fundamentals.
2. Cloud security services, Design principles.
3. Secure Cloud Software Requirements, Policy Implementation.
4. Cloud Computing Security Challenges.
5. Virtualization security Management.
6. Cloud Computing Security Architecture.

Session 5: Market based Management on Cloud

1. Market Based Management of Clouds.
2. Federated Clouds/Inter Cloud: Characterization & Definition.
3. Cloud Federation Stack, Third Party Cloud Services.
4. Case study : Google App Engine, Microsoft Azure, Hadoop, Amazon, Aneka

Book References

1. Buyya, Selvi ," Mastering Cloud Computing ",TMH Pub.
2. Kumar Saurabh, "Cloud Computing" , Wiley Pub.
3. Krutz , Vines, "Cloud Security " , Wiley Pub.