

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Computer Science & Information Technology, VII-Semester

Open Elective CSIT – 703(C) Cloud Computing

Objective:

1. To provide students with the fundamentals and essentials of Cloud Computing.
2. To provide students a sound foundation of the Cloud Computing so that they are able to start using and adopting Cloud Computing services and tools in their real life scenarios.

Course Outcomes: After the completion of this course, the students will be able to:

- 1 State Cloud fundamentals & its application.
- 2 Describe the architecture of cloud & various solutions.
- 3.Paraphrase virtualization technologies & describe cloud management.
4. Explain cloud security fundamentals.
- 5.Apply various cloud platforms like Google App Engine, Hadoop etc.

UNIT I

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

Unit-II

Cloud Computing Architecture: Cloud Reference Model, Types of Clouds, Cloud Interoperability & Standards, Scalability and Fault Tolerance,

Cloud Solutions: Cloud Ecosystem, Cloud Business Process Management, Cloud Service Management.

Cloud Offerings: Cloud Analytics, Testing Under Control, Virtual Desktop Infrastructure.

Unit –III

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

Unit-IV

Cloud Security: Cloud Information security fundamentals, Cloud security services, Design principles, Secure Cloud Software Requirements, Policy Implementation, Cloud Computing Security Challenges, Virtualization security Management, Cloud Computing Security Architecture .

Unit-V

Market Based Management of Clouds , Federated Clouds/Inter Cloud: Characterization & Definition ,Cloud Federation Stack , Third Party Cloud Services .

Case study : Google App Engine, Microsoft Azure , Hadoop , Amazon , Aneka

Recommended Books:

1. Buyya, Selvi ,” Mastering Cloud Computing “,TMH Pub
2. Kumar Saurabh, “Cloud Computing” , Wiley Pub
3. Krutz , Vines, “Cloud Security “ , Wiley Pub
4. Velte, “Cloud Computing- A Practical Approach” ,TMH Pub
5. Sosinsky, “ Cloud Computing” , Wiley Pub

List of Experiments:

1. Installation and configuration of Hadoop/Euceliptus etc.
2. Service deployment & Usage over cloud.
3. Management of cloud esources.
4. Using existing cloud characteristics & Service models .
- 5.Cloud Security Management.
6. Performance evaluation of services over cloud .

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