मेडी-केप्स विश्वविद्यालय, इंदौर

Medi-Caps University, Indore

Course Code	Course Name	Hours per Week			Total	
		L	T	P	Hrs.	Credits
CA5EL50	Cloud Computing	4	0	0	4	4

Course Objectives:

1. Understand various basic concepts related to cloud computing technologies.
2. Understand the architecture and concept of different cloud models: IaaS, PaaS, SaaS
3. Understand the underlying principle of cloud virtualization, cloud storage, data management and data visualization.
4. Understand different cloud programming platforms and tools

Prerequisites: Nil
Co-requisites: Nil

Curriculum:

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.

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.
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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 AppEngine, Microsoft Azure, Hadoop, Amazon, Aneka.

Course Outcomes:

A. Develop and deploy cloud application using popular cloud platforms.
B. Design and develop highly scalable cloud-based applications by creating and configuring virtual machines on the cloud and building private cloud.
C. Explain and identify the techniques of big data analysis in cloud.
D. Compare, contrast, and evaluate the key trade-offs between multiple approaches to cloud system design, and identify appropriate design choices when solving real-world cloud computing problems
E. Write comprehensive case studies analysing and contrasting different cloud computing solutions.
F. Make recommendations on cloud computing solutions for an enterprise.

Text Books

1. Buyya, Selvi, Mastering Cloud Computing , TMH Pub
2. Kumar Saurabh, Cloud Computing, Wiley Pub.

Reference Books::

1. Krutz , Vines, Cloud Security, Wiley Pub
2. Velte, Cloud Computing- A Practical Approach, TMH Pub
3. Sosinsky, Cloud Computing
4. Dimitris N. Chorafas, Cloud Computing Strategies, CRC Press

Web Source:

1. https://www.ibm.com/cloud/learn/what-is-cloud-computing
2. https://www.globaldots.com/cloud-computing-types-of-cloud
3. https://www.cisco.com/c/en/us/about/press/internet-protocol.../123-cloud1.html

Open Learning Source:

1. https://onlinecourses.nptel.ac.in/noc17_cs23
5. https://www.openstack.org