

ELECTIVE III

2CSE50E17: Cloud Computing Essentials

[3 0 2 3 1]

Learning Outcomes:

After learning the course the students should be able to

- Understand the computing paradigm and cloud computing
- Understand the architecture of cloud computing
- Understand and use the service models and deployments
- Work on any real cloud service
- Understand the service management and security of cloud

SYLLABUS

Unit No.	Topics	Lectures (Hours)
1	INTRODUCTION Overview of computing paradigms, Recent trends in computing, evolution of cloud computing, Overview of cloud computing, Cloud computing-Concepts, properties, characteristics, Role of open standards.	6
2	CLOUD COMPUTING ARCHITECTURE Cloud computing architecture, Cloud service delivery models (XAAS), Cloud Deployment models	5
3	INFRASTRUCTURE AS A SERVICE Introduction, Hypervisors, Resource virtualization, Examples, How to implement IAAS	7
4	PLATFORM AS A SERVICE Introduction, Cloud Platform and Management, Examples, How to implement PAAS	7
5	SOFTWARE AS A SERVICE Introduction, Web services, Web 2.0, Web OS, Examples, How to implement SAAS	7
6	SERVICE MANAGEMENT IN CLOUD COMPUTING Service Orchestration -Cloud computing and Service Management, Service Level Agreements (SLAs), Billing & Accounting, Comparing scaling hardware, economics of scaling, managing data. Cloud performance, Existing project experience	5
7	CLOUD SECURITY Infrastructure security, Data Security, Storage Identity and Access Management, Access Control, Trust and Reputation, Authentication in Cloud computing	4

8	CASE STUDY ON OPEN SOURCE AND REAL CLOUD SERVICES Eucalyptus, VMware Cloud, IBM Bluemix, Google Cloud services, Amazon Web services	4

PRACTICALS:

Practicals will be based on the coverage of the above topics using any real cloud service (IBM Bluemix, Google cloud service or AWS).

Reference Books:

1. Barrie Sosinsky: "Cloud Computing Bible", Wiley-India, 2010
2. Rajkumar Buyya, James Broberg, Andrzej M. Goscinski: "Cloud Computing: Principles and Paradigms", Wiley, 2011
3. Nikos Antonopoulos, Lee Gillam: "Cloud Computing: Principles, Systems and Applications", Springer, 2012
4. Ronald L. Krutz, Russell Dean Vines: "Cloud Security: A Comprehensive Guide to Secure Cloud Computing", Wiley-India, 2010
5. Tim Mather, Subra Kumara swamy, Shahed Latif, Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance, O'Reilly Media, 2009.