

## CLOUD COMPUTING

**Paper Code: ETIT-407**  
**Paper: Cloud Computing**

<b>L</b>	<b>T/P</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>3</b>

### **INSTRUCTIONS TO PAPER SETTERS:**

**MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12.5 marks

*Objective: To enable students to understand the basic concepts of Cloud Computing and to apply these concepts for designing, evaluating, simulations and comparing various applications in Cloud Computing.*

### **UNIT I**

#### **Introduction to Cloud Computing**

Overview of Parallel Computing, Grid Computing, Distributed Computing and its Variants (eg. MANETs, Peer to Peer, Cloud), Introduction to Autonomic Computing, Evolution of Cloud Computing and it's vision, Issues and Challenges in Cloud Computing, Applications of Cloud Computing.

[T1, T2][No. of Hours: 10]

### **UNIT II**

#### **Cloud Computing Architecture**

**Cloud Computing Architectures:** features of Clouds: components, types, technologies, Service Models (Services: IaaS, PaaS, SaaS), Deployment Models ( Public Cloud, Private Cloud, Hybrid Cloud, Community Cloud) various cloud management platforms and tools.

[T1, T2][No. of Hours: 12]

### **UNIT III**

#### **Virtualization of Clouds**

**Virtualization:** Introduction, Evolution, Virtualized Environment characteristics, Server Virtualization, VM Provisioning and Manageability, VM Migration Services, VM Provisioning in the Cloud Context, and Future Research Directions. Cloud Security Mechanisms (Encryption, PKI, SSO, IAM), Service Management in Cloud Computing(SLA, Billing & Accounting etc).

[T1, T2][No. of Hours: 12]

### **UNIT IV**

#### **Advanced Cloud Applications**

Specialized Cloud Architecture: Direct I/O Access, Load Balanced Virtual Switches, Multipath Resource Access, Federated Clouds, Basics of Cloud Mobility, Enterprise cloud computing: Data, Processes, Components, Architectures, applications, Enterprise Software(ERP, SCM, CRM)

Case Studies on Open Source and Commercial available tools and platforms (Microsoft Azure, Google AppEngine, Amazon Web services, Hadoop, Eucalyptus, Cloud SIM etc).

[T1, T2][No. of Hours: 11]

#### **Text Books:**

- [T1] Rajkumar Buyya, Christian Vecchiola, and Thamarai Selvi, Mastering Cloud Computing, Tata McGraw Hill, New Delhi, India, 2013.
- [T2] Thomas Erl, Zaigam Mahmood, Ricardo Puttini, Cloud Computing Concepts, Technology & Architecture, 1<sup>st</sup> Reprint, Pearson India, 2013 (T2)
- [T3] Kumar Saurabh, Cloud Computing, 2<sup>nd</sup> Edition, Wiley, 2013 (T3)
- [T4] Gautam Shroff, "Enterprise Cloud Computing", Cambridge University Press.

#### **Reference Books:**

- [R1] Barrie Sosinsky, Cloud Computing Bible, Wiley
- [R2] A. Srinivasan and J. Suresh, Cloud computing a practical approach for learning and Implementation, Pearson India 1<sup>st</sup> edition
- [R3] Michael Miller, Cloud Computing, Pearson, 2008.
- [R4] Mukesh Singhal, Niranjan G.Shivaratri, TMH Edition. (Must be included for the basics of distributed systems basics from which all distributed systems have been originated).