Marwadi University

**FACULTY OF COMPUTER APPLICATIONS**
**Bachelor of Computer Applications**

- **Sem.** : **6**
- **Subject Code** : **05BC3605**
- **Subject** : **Cloud Computing Fundamentals**
- **Course Objectives** :
  1. To understand the principles and paradigm of Cloud Computing
  2. To identify the types and model of cloud computing
  3. To learn about cloud service models to effectively utilize cloud the resources.
  4. To identify the role of virtualizations in cloud computing
  5. To illustrate application of cloud computing in real world.

- **Prerequisites** : Basic knowledge of Computer network and operating system

| Unit No | Topics Covered | No of lectures required |
|---|---|---|
| **1** | Introduction to Cloud Computing<br><br>Introduction to Computing, computing Paradigm – Cluster, Parallel, Grid Computing, Cloud Computing- definitions, characteristics and benefits of cloud computing , applications of cloud computing | **09** |
| **2** | Cloud Computing Types and Models<br><br>Key drivers for cloud computing, Cloud computing And outsourcing, Types of Scalability , Define Load balancer and use of load balancers<br><br>Private cloud, Components of private cloud, implementation of private cloud, Hardening of private cloud ,Use cases of Private cloud, Public cloud, community cloud, Hybrid cloud, Public versus Community cloud | **10** |

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|---|---|---|
| **3** | Cloud Computing Services<br><br>Infrastructure as a service, Platform as a service, Leveraging PaaS, Language and PaaS, Software as a service, Database as a service, Specialized cloud services | **09** |
| **4** | Fundamentals of Virtualization<br><br>Introduction to Virtualization and its benefits, Virtualization at OS level, Virtualization Structure, Virtualization Mechanisms, Open source virtualization Technology, Binary Translation with full virtualization, Paravirtualization with compiler support , Virtualization of CPU, Memory, and I/O devices | **10** |
| **5** | Cloud computing case studies<br><br>Cloud computing consumer case studies:<br>Nutritious Foods, Gamysoft, Andrew sportwear ERPs | **07** |

**Course Outcomes :**

1. Students will be able to understand the core concepts of cloud computing paradigm.
2. Students will be able to illustrate types and model of cloud computing.
3. Students will be able to describe various services offered in cloud computing.
4. Students will be able to illustrate virtualization and its types in cloud computing.
5. Students will able to identify the applications of cloud computing in different domains, assessing their benefits and limitations in various contexts

Course Outcomes – Program Outcomes Mapping Table :

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | L | | | | | | | | L | | |
| CO2 | | M | | | | | | | | L | |
| CO3 | | | H | | | | | | | | |
| CO4 | | | M | | H | | | | | | M |
| CO5 | | | | | | L | | M | | | |

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**Text Book :**

1. Cloud Computing – Fundamentals, Industry Approach and Trends, Rishabh Sharma, ISBN-9788126553068, Wiley
2. Cloud Computing: Black Book , Kailash Jayaswal, Jagannath Kallakurchi, Donald J Houde, Dr. Deven Shah , Dreamtech Publications (ISBN 978-93-5119- 418-7)

**Reference Books :**

1. Mastering Cloud Computing by Rajkumar Buyya, C. Vecchiola & S. Thamarai Selvi , McGRAW Hill Publication, First Edition
2. Cloud Computing: A practical approach by Anthony T. Vetle , Tata McGraw Hill Education Private Limited (2009)
3. Cloud Computing Bible. Barrie Sosinsky. John Wiley & Sons. ISBN-13: 978-0470903568, First Edition

**Web References :**

1. http://www.cloudbus.org/
2. https://aws.amazon.com/

**References :**

1. Coursera
2. Udemy

**Syllabus Coverage from text /reference book & web/app reference:**

| Unit # | Chapter Numbers |
|---|---|
| 1 | Book 1 Chapter 1 and 2 |
| 2 | Book 2 Chapter 4 & 6 |
| 3 | Book 2 Chapter 3 |
| 4 | Book 2 Chapter 2 |
| 5 | Book 1 Chapter 10 |