# 19CS31E4 - CLOUD COMPUTING

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| **Course Category:** | Professional Elective | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture – Tutorial – Practical:** | 3-0-0 |
| **Prerequisite:** | .Operating Systems, Internet, Network Security, Parallel Processing, Databases and various computing. | **Sessional Evaluation:****Univ.Exam Evaluation:****Total Marks:** | 4060100 |
| **Course Objectives** | * To introduce the broad perceptive of cloud architecture and model
* To understand the concept of Virtualization and familiar with the lead players in cloud.
* To understand the features of cloud simulator and apply different cloud programming model as per need.
* To design of cloud Services and explore the trusted cloud Computing system
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| **Course Outcomes** | Upon successful completion of the course, the students will be able to: |
| CO1 | Know basic idea about cloud computing vision and its developments. |
| CO2 | Learn taxonomy of Virtualization techniques in Cloud. |
| CO3 | Understand categories of cloud and its collaborative services. |
| CO4 | Study internal components and structure of Cloud models. |
| CO5 | Acquire knowledge on Aneka Cloud Application Platform. |
| CO6 | Explore various real time applications & cloud platforms in industry. |
| **Course Content** | UNIT – I**Introduction to Cloud**: Cloud Computing at a Glance, The Vision of Cloud Computing,Defining a Cloud, A Closer Look, Cloud Computing Reference Model. Characteristics and Benefits, Challenges Ahead, Historical Developments.UNIT – II**Virtualization**: Introduction, Characteristics of Virtualized Environment, Taxonomy ofVirtualization Techniques, Virtualization and Cloud computing, Pros and Cons ofVirtualization, Technology Examples- VMware and Microsoft Hyper-V.UNIT – III**Cloud Computing Architecture** : Introduction, Cloud Reference Model, Architecture ,Infrastructure / Hardware as a Service, Platform as a Service, Software as a Service, Types of Clouds, Public Clouds, Private Clouds, Hybrid Clouds, Community Clouds, Economics of the Cloud, Open Challenges, Cloud Interoperability and Standards, Scalability and Fault Tolerance.UNIT – IV**Defining the Clouds for Enterprise**: Storage as a service, Database as a service, Process as a service, Information as a service, Integration as a service and Testing as a service. Scaling a cloud infrastructure - Capacity Planning, Cloud Scale. Disaster **Recovery**: Disaster Recovery Planning, Disasters in the Cloud, Disaster Management.UNIT – VAneka: Cloud Application Platform Framework Overview, Anatomy Of The Aneka Container, From The Ground Up: Platform Abstraction Layer, Fabric Services, Foundation Services, Application Services, Building Aneka Clouds, Infrastructure Organization, Logical Organization, Private Cloud Deployment Mode, Public Cloud Deployment Mode, Hybrid Cloud Deployment Mode-rk, grid computingUNIT – VICloud Applications: Scientific Applications – Health Care, Geoscience And Biology. Business And Consumer Applications- Crm And Erp, Social Networking, Media Applications And Multiplayer Online Gaming.**Cloud Platforms in Industry:** Amazon Web Services- Compute Services, Storage Services, Communication Services and Additional Services. Google App Engine-Architecture and Core Concepts, Microsoft Azure- Azure Core Concepts, SQL Azure. |
| **Text Books and References:** | **Text Book:*** + - 1. Mastering Cloud Computing by Rajkumar Buyya, Christian Vecchiola,S.Thamarai Selvi from TMH 2013.

**Reference Books:**1. George Reese, “Cloud Application Architectures: Building Applications and Infrastructure in the Cloud” O'Reilly
2. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
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| **E-Resources** | 1. [**https://nptel.ac.in/courses**](https://nptel.ac.in/courses)
2. [**https://freevideolectures.com/university/iitm**](https://freevideolectures.com/university/iitm)
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