17CS3205 -CLOUD COMPUTING

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| **Course Category:** | Program Core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture – Tutorial – Practical:** | 3-2-0 |
| **Prerequisite:** | Have knowledge on Internet, Security issues, social networks and computing technologies. | **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 infrastructure |
| CO2 | Learn the approaches to integrate the Saas |
| CO3 | Study about Cloud computing in business marketing |
| CO4 | Apply virtual machine principles for cloud |
| CO5 | Analyze various Tools and platforms for cloud computing |
| CO6 | Study the Architecture of Workflow Management for clouds |
| **Course Content** | UNIT – I**Introduction to Cloud Computing**Cloud Computing in a Nutshell, Roots of Cloud Computing, Layers and Types of Clouds, Desired Features of a Cloud, Cloud Infrastructure Management, Infrastructure as a Service Providers, Platform as a Service Providers, Challenges and Risks. **Migrating into a Cloud:** Introduction, Broad Approaches to Migrating into the Cloud, The Seven-Step Model of Migration into a Cloud.UNIT – II**Enriching the ‘Integration as a Service’ Paradigm for the Cloud Era**An Introduction, The Onset of Knowledge Era, The Evolution of SaaS, The Challenges of SaaS Paradigm, Approaching the SaaS Integration Enigma, New Integration Scenarios, The Integration Methodologies, SaaS Integration Products and Platforms, SaaS Integration Services, Businesses-to-Business Integration (B2Bi) Services, A Framework of Sensor—Cloud Integration, SaaS Integration Appliances.UNIT – III**The Enterprise Cloud Computing Paradigm**Introduction, Background, Issues for Enterprise Applications on the Cloud, Transition Challenges, Enterprise Cloud Technology and Market Evolution, Business Drivers Toward a Marketplace for Enterprise Cloud Computing, The Cloud Supply Chain. **Enhancing Cloud Computing Environments Using a Cluster as a Service:** Introduction, Related Work, RVWS Design, Cluster as a Service: The Logical Design, Proof of Concept.UNIT – IV**Virtual Machines Provisioning and Migration Services**Introduction and Inspiration, Background and Related Work, Virtual Machines Provisioning and Manageability, Virtual Machine Migration Services, VM Provisioning and Migration in Action, Provisioning in the Cloud Context.UNIT – V**Aneka—Integration of Private and Public Clouds:** Introduction, Technologies and Tools for Cloud Computing, Aneka Cloud Platform, Aneka Resource Provisioning Service, Hybrid Cloud Implementation, Visionary thoughts for Practitioners. **CometCloud-An Autonomic Cloud Engine:** Introduction, CometCloud Architecture, Autonomic Behavior of CometCloud, Overview of CometCloud-based Applications, Implementation and Evaluation.-rk, grid computingUNIT – VI**Workflow Engine for Clouds**: Introduction, Background, Workflow Management Systems and Clouds, Architecture of Workflow Management Systems, Utilizing Clouds for Workflow Execution, Case Study: Evolutionary Multiobjective Optimizations, Visionary thoughts for Practitioners.**Data Security in the Cloud:** An Introduction to the Idea of Data Security, The Current State of Data Security in the Cloud, Homo Sapiens and Digital Information, Cloud Computing and Data Security Risk, Cloud Computing and Identity, The Cloud, Digital Identity, and Data Security, Content Level Security—Pros and Cons. |
| **Text Books and References:** | **Text Book:**1. Raj KumarBuyaa, James Broberg, and AndrzejGoscinski “Cloud Computing Principles and Paradigms”, Wiley Publishers, 2016.

**Reference Books:**1. John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
2. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
3. George Reese, “Cloud Application Architectures: Building Applications and Infrastructure in the Cloud” O'Reilly.
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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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