| 7th Semester | RIT7D004 | Cloud Computing | L-T-P 3-0-0 | 3 Credits |
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**Objectives**

☐ To understand the fundamentals of cloud computing

☐ To understand the architecture of various cloud

☐ To understand the simulation of cloud system using some state-of-the-art platforms

**Module I:**                                                                                  (10 Hours)

Evolution of Computing Paradigms - Overview of Existing Hosting Platforms, Grid Computing, Utility Computing, Autonomic Computing, Dynamic Data center Alliance, Hosting / Outsourcing, Introduction to Cloud Computing, Workload Patterns for the Cloud, "Big Data", IT as a Service, Technology Behind Cloud Computing

**Module II:**                                                                                 (10 Hours)
A Classification of Cloud Implementations- Amazon Web Services - IaaS, The Elastic Compute Cloud (EC2), The Simple Storage Service (S3), The Simple Queuing Services (SQS), VMware vCloud - IaaS, vCloud Express, Google AppEngine - PaaS, The Java Runtime Environment

**Module III:**                                                                                (10 Hours)

The Python Runtime Environment- The Datastore, Development Workflow, Windows Azure Platform - PaaS, Windows Azure, SQL Azure, Windows Azure AppFabric, Salesforce.com - SaaS / PaaS, Force.com, Force Database - the persistency layer, Data Security, Microsoft Office Live - SaaS, LiveMesh.com, Google Apps - SaaS, A Comparison of Cloud Computing Platforms, Common Building Blocks.

**Module IV:**                                                                                 (10 Hours)

Cloud Security – Infrastructure security – Data security – Identity and access management Privacy- Audit and Compliance

**Outcomes**

☐ Ability to develop the fundamentals of cloud computing

☐ Ability to understand architecture of cloud

☐ Ability to comprehend, design, and develop cloud system using some state-of-the-art platform

**Books:**

1. Kai Hwang, Geoffrey C. Fox and Jack J. Dongarra, "Distributed and Cloud Computing from   Parallel Processing to the Internet of Things", Morgan Kaufmann, Elsevier, 2012
2. Barrie Sosinsky, "Cloud Computing Bible" John Wiley & Sons, 2010
3. R. Buyya, C. Vecchiola and S. ThamaraiSelvi, Mastering Cloud Computing: Foundations and Applications Programming, Morgan Kaufmann, Elsevier, 2013.
4. P. K. Pattnaik, M. R. Kabat and S. Pal, Fundamentals of Cloud Computing, Vikas Publishing House Pvt. Ltd., 2015.

**Digital Learning Resources:**

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|---|---|
| Course Name: | Cloud Computing |
| Course Link: | https://onlinecourses.nptel.ac.in/noc21_cs14/preview |
| Course Instructor: | Prof. Soumya Kanti Ghosh, IIT Kharagpur |
| Course Name: | Cloud Computing and Distributed Systems |
| Course Link: | https://onlinecourses.nptel.ac.in/noc21_cs15/preview |
| Course Instructor: | Prof. Rajiv Misra, IIT Patna |