

<b>COURSE</b>	Name : Cloud Computing
	Code : EE185251
	Credit(s) : 3
	Semester : II

### Description of Course

In this course, students will study cloud computing, from applications and administration to programming and infrastructure. The main goal is parallel programming techniques for cloud computing and large-scale distributed systems that make up the cloud infrastructure. The topics include broad-based cloud computing, cloud systems, parallel cloud processing, distributed storage systems, virtualization, security in cloud systems, and multicore operating systems.

### Learning Outcomes

#### Knowledge

(P01) Mastering the concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the analysis and design of systems related to the field of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics as a preparation for further education or professional career.

#### Specific Skill

(KK01) Being able to formulate engineering problems with new ideas for the development of technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

#### General Skill

(KU11) Being able to implement information and communication technology in the context of execution of his/her work.

#### Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.  
(S12) Working together to be able to make the most of his/her potential.

### Course Learning Outcomes

#### Knowledge

Able to understand the basic concepts of cloud computing paradigm, characteristics, advantages and challenges posed by various models and services in cloud computing.

#### Specific Skill

Able to explain system virtualization, networking and storage and outline its role in enabling cloud computing system models.

#### General Skill

Abto to apply the basic concepts of cloud infrastructure to obtain power balance, efficiency and costs to be applied to tough, elastic and cost-effective cloud applications.

#### Attitude

Demonstrating attitude of being responsible for the work in his area of expertise independently.  
Working together to be able to make the most of their potential.

### Main Subjects

1. Introduction: Definition and evolution of Computing Models of Technology, Services and Application of Cloud Computing Layers and Popular Cases of Cloud Use Benefits, Risks, and Challenges of Cloud Model Economic Computing and SLA Topics on Cloud Security
2. Cloud Infrastructure: Design of IT Tools and Equipment, Requirements, Power, Efficiency & Power Redundancy Calculation, Cloud Software
3. Virtualization: Virtualization (CPU, Memory, I / O)
4. Cloud Storage: Introduction to Storage Systems Concept of Distributed File System Cloud Storage (HDFS, Ceph FS) Cloud Database (HBase, MongoDB, Cassandra, DynamoDB) Cloud Object Storage (Amazon S3, OpenStack Swift, Ceph)
5. Distributed Programming: Programming Model for Cloud Data-Parallel Analysis with Hadoop MapReduce (YARN)

### Reference(s)

- [1] Igor Faynberg, Kui-Lan Lu, and Dor Skuler, Cloud Computing: Business Trends and Technologies, Wiley, 2015

### Prerequisite(s)

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