ORT Braude college of engineering
Department of Software engineering

Cloud Computing 61979

Credits 2.5

Course overview

Students will learn various concepts in the area of Cloud Computing, including cloud models (private, public, hybrid), and cloud services (SAAS, PAAS,IAAS).
We will discuss the implications of using cloud computing, from different aspects, such as the economical aspect, data privacy maintenance, and cloud migration.
The course will also include practical assignments, developing a web-based cloud application in a commercial framework. The application will be implemented using common programming languages.
The application will we deployed in a cloud environment.
The course will also include reading assignments, where the students will analyze academic papers, addressing contemporary issues in cloud computing research.

Completing the course, the students will be able to build and deploy a cloud application, using commercial frameworks.

Course schedule

Week	HW	Recitation	Lecture
1		VS Azure intro, HTML	*Intro to cloud computing
2	Reading assignment #1	Server/Client Java Script	Private/Public/Hybrid
3	Programming Assignment Visual studio #1	Design Thinking workshop	Cloud services (SaaS,PaaS,IaaS)
4		Cloud communication	Cloud architecture
5	Reading assignment #2	JSON	Cloud Service Level Agreement - SLA
6		XML	Financial aspects of cloud computing
7		*Software studio	Cloud migration case studies
8		Programming lab	Green IT
9	Programming Assignment	Programming lab	Current research in cloud computing

	Visual studio #2		
10		*Lab：IoT	Internet of Things －
11		*Lab: big data	Big Data ,－ No-SQL , Hadoop.
12		Programming lab	*Data privacy in the cloud
13		Summary	*Project presentations

Lectures marked with * are mandatory.

Literature:

1. Walker, Henry M. *Teaching Computing: A Practitioner's Perspective*. CRC Press, 2018
2. Buyya, Rajkumar, James Broberg, and Andrzej M. Goscinski, eds. *Cloud computing: Principles and paradigms*. Vol. 87. John Wiley & Sons, 2010.
3. Al-Fuqaha, Ala, et al. "Internet of things: A survey on enabling technologies, protocols, and applications." *IEEE communications surveys & tutorials* 17.4 (2015): 2347-2376.
4. Ning, Zhaolong, et al. "Green and sustainable cloud of things: Enabling collaborative edge computing." *IEEE Communications Magazine* 57.1 (2018): 72-78.

Course grade structure
1. Collaborative assignments during class sessions – personal grade – 25%
2. Course project and presentations – frontal presentation is mandatory – 15%
3. 4 Homework assignments – 60% (15% of them – personal assignment)

Final grade – assignments grades will be calculated only if the average grade is higher than 55. A minimal grade of 55 is required in both projects and assignments.
All assignments and presentations are mandatory.

Attendance – 80% during the semester. Students, who fail to attend at least 80% of the sessions, will not pass the course.

Assignments are submitted in pairs (except for the personal assignments).
Copying from another pair is strictly prohibited.

Course learning outcomes
Upon successful completion of this course, students will be able to:
1. Design and write Cloud computing programs.
2. Understand the characteristics of Cloud computing systems
3. Distinguish between SAAS, IAAS, PAAS applications.
4. Design and write a SLA agreement.
5. Understand the role of Cloud computing in industry use.
6. Understand the basic structure of virtually all Cloud computing systems.