Óbuda University John von Neumann Faculty of Informatics			Institute for Cyber-physical Systems	
Name and code:			**Credits*: 3***	
Cloud computing services I (NIXFS1CBNE)			*2022/23 year I. semester*	
Subject lecturers: Róbert Lovas Ph.D. habil., Attila Farkas				
Prerequisites (with code):	Virtualised storage systems (NIXVT1CBNE)			
Weekly hours: 2	Lecture: 2	Seminar.: 0	Lab. hours: 0	Consultation: 0
Way of assessment:	Written test			

Course description:

Goal:
The main aim of the subject is to get familiarised with cloud computing systems, and to provide theoretical grounding for widespread public, private, and hybrid cloud platforms both from the user's and from the cloud operator's point of view.
Introduce to and get practiced in the development of cloud-oriented software systems using the most widespread design patterns.
The course serves as the basis for the practical knowledge to be used for the deployment of an open-source cloud computing system during the practice labs later.

Course description: The students will acquire knowledge on service types offered by clouds (IaaS/PaaS/SaaS), and their related deployment characteristics, typical solutions, as well as their management and automation possibilities. In the course students learn about the practical approaches of developing cloud-based software systems. The course deals with developer and test environments, special development and programming models and design patterns, standard solutions, and best practices in development. The topics also cover the authentication and security issues of cloud-oriented software systems.

Lecture schedule

Education week	*Topic*
1.	Clouds and software models
2.	IaaS: APIs, development and test tools
3.	PaaS / SaaS: APIs, development and test tools
4.	OpenNebula
5.	Design patterns I: Scalability
6.	Design patterns II: High Availability
7.	Design patterns III and IV: Static and dynamic data
8.	Design patterns V: Databases
9.	**HOLIDAY**
10.	Design patterns VI: Data processing
11.	Design patterns VII: Throw-away environments
12.	**HOLIDAY**
13.	Midterm test
14.	Midterm test retake (if necessary)

Midterm requirements

The written test has to be passed.

Final grade calculation methods

Achieved result	Grade
89%-100%	excellent (5)
76%-88<%	good (4)
63%-75<%	average (3)
51%-62<%	satisfactory (2)
0%-50<%	failed (1)

Type of exam

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Type of replacement

In the 14th week.

References

Obligatory:
Barrie Sosinsky: Cloud Computing Bible, Wiley, 2011
Bill Wilder: Cloud Architecture Patterns, O'Reilly, 2012
Marcus Young: Implementing Cloud Design Patterns for AWS, PACKT, 2015

Recommended:
See Moodle