Óbuda University John von Neumann Faculty of Informatics			Institute for Cyber-Physical Systems	
Name and code: *Technologies of virtualised networks and data centers (NIEVA1CBNE)* **Credits*: 7*** *Computer Science and Engineering BSc* *2022/23 year I. semester*				
Subject lecturers: Róbert Lovas Ph.D. habil., Attila Farkas				
Prerequisites (with code):	Cloud Computing Services I (NIXFS1CBNE)			
Weekly hours:	Lecture: 2	Seminar.: 0	Lab. hours: 3	Consultation: 0
Way of assessment:	Written exam			

Course description:

Goal: The advanced level course concentrates on the system level theory, the design challenges, and the most significant practical realisations of computational clouds, as a middleware, particularly based on open-source practices (OpenStack) and focusing on the Infrastructure-as-a-Service solutions.

Course description: The course provides a short overview on theoretical and practical knowledge concerning public, private, and hybrid clouds from the aspects of users, system engineers, and operators. The students get acquainted with the types of services (IaaS/PaaS/Saas) offered by clouds, and the main characteristics of their implementations, as well as their typical solutions. Some selected components of cloud, as a middleware, are discussed in details; starting from the block and object stores (e.g. Cinder/Swift), through the components responsible for the authentication (e.g. Keystone), ending with the telemetry and orchestration tools (e.g. Ceilometer/Heat). In the field of platform services, the students get a short overview on the cloud based deployments and use cases of Big Data tools.

Lecture schedule

Education week	*Topic*
1.	Introduction
2.	OpenStack basics
3.	Keystone
4.	Glance
5.	Nova
6.	Neutron
7.	Cinder
8.	Swift
9.	**HOLIDAY**
10.	AWS – EC2, S3 (Iaas)
11.	Midterm test
12.	**HOLIDAY**
13.	Presentation of midterm project
14.	Replacement of midterm test or midterm project presentation

Midterm requirements

- Successful written midterm test
- Implemented midterm project has to be documented and presented

Midterm tests

Education week	Topic
12	Midterm test
13	Presentation of midterm project
14	Replacement of midterm test or project work presentation

Final grade calculation methods

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Type of replacement

In the 14th week for the midterm test or midterm project presentation.

Type of exam

Written exam

Exam grade calculation method

Based on the midterm test result an offered grade can be obtained.
OR
Based on the exam result.

In both cases, the completed midterm project will modify the exam result with -1/0/+1 grade.

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

References

Mandatory:

The published student material in the Moodle page of the subject.

Recommended:

Matt Dorn: Preparing for the Certified OpenStack Administrator Exam, Packt, 2017
Anne Gentle, Diane Fleming, Everett Toews, Joe Topjian, Jonathan Proulx, Lorin Hochstein, Tom Fifield: OpenStack Operations Guide. O`Reilly, 2014 (electronic notes)
Scott Adkins, John Belamaric, Vincent Giersch, Denys Makogon, Jason E. Robinson: OpenStack
Cloud Application Development. Wiley, 2016 (electronic notes)