Name: **Cloud Computing Systems**		NEPTUN-code: *NIXCC1EMNE*	Number of periods/week: full-time: 2 lec + 0 sem + 2 lab
Credit: 4 *Requirement:* exam		*Prerequisite: NIXPEREMNE* Parallel Programming	
Responsible: Róbert LOVAS, Ph.D.	*Position:* associate professor	*Faculty and Institute name:* John von Neumann Faculty of Informatics Institute of Applied Informatics	

Way of assessment:
- midterm exams
- successful submission of a homework assignment and its presentation

Competences

Course description:

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. 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.

Literature

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)