Name: **Database- and Big Data Technologies**		NEPTUN-code: *NIXAB1EMNE*	Number of periods/week: full-time: 2 lec + 0 sem + 2 lab
Credit: 4 **Requirement:** mid-term mark		**Prerequisite:** -	
Responsible: Rita Dominika FLEINER, Ph.D.	**Position:** senior lecturer	**Faculty and Institute name:** John von Neumann Faculty of Informatics Institute of Applied Informatics	

Way of assessment:
 – mid-term exam and successful submission of homework assignment

Competences

Course description:

During the course students learn about concepts, procedures and tools related to advanced topics of database management and big data technologies.Topics: refreshing and deepening SQL knowledge, Oracle database architecture, Oracle instance, memory structures. Data modeling, database design, relational data model, normal forms. SQL processing. Database tuning, access paths, execution plan, index structures, join methods, CBO statistics, selectivity, costs, materialization, pipelining, query optimization. Transactions, concurrency control and recovery. Database security. NoSQL databases and types. Document stores, key-value stores, graph databases, column stores: basics, architecture, queries. CAP theorem. Hadoop framework, file system, resource management. MapReduce paradigm. Basic concepts of data analysis, forecasting, data science. Open source packages and query tools overview. Datamining techniques.

Literature

Ullman J.D., Widom J.: Database Systems, Foundation, 2nd edition, PANEM Kiadó, Budapest, 2008 (in Hungarian)
Gy. Bőgel: The Big Data 's Ecosystem, Typotex kiadó, 2015 (in Hungarian)
G. Koch, K. Loney: ORACLE10g (complete reference book), Panem, 2005 (in Hungarian)
Vivek, M.: Beginning Apache Cassandra Development. Apress, 2014
Fajszi B., Cser L., Fehér T.: Business value in an ocean of data. Alinea Kiadó, 2013
Harrison, G.: Next Generation Databases: NoSQL, NewSQL, and Big Data. Apress, 2015