Name: **Discrete Mathematics and Linear Algebra II**		*NEPTUN-code:* *NMXDM2EBNE*	*Number of periods/week:* full-time: 3 lec + 2 sem + 0 lab
Credit: 5 *Requirement:* exam	*Prerequisite:* *NMXDM1EBNE* Discrete Mathematics and Linear Algebra I		
Responsible: Magdolna SZŐKE, Ph.D.	*Position:* senior lecturer	*Faculty and Institute name:* John von Neumann Faculty of Informatics Institute of Applied Mathematics	

Way of assessment:

- signature requirements: at least 50% compliance of mid-term papers
- exam-mark: according to the result of the exam

Competences

Course descrition:

Binary relations, equivalence classes, partial ordering, lattices. Boolean algebras.
Elements of combinatorics (permutations, combinations). Proof by induction.
Graphs, trees, applications. Planar graphs, graph colouring.
Vector spaces. Linear independence. Bases and dimension. Algorithm for changing of basis-vectors.
Linear transformations. Representation of linear transformations by matrices. Rank of matrix. Eigenvalues and eigenvectors.
Algebraic structures: groups, rings, fields.

Literature

János Bagyinszki – Anna György: Discrete Mathematics for College Students, Typotex, Budapest, 2002 (in Hungarian)
Anna György – Péter Kárász– Szabolcs Sergyán – István Vajda – Ágnes Záborszky: Discrete Mathematics Examples, BMF-NIK-5003, Budapest, 2003 (in Hungarian)
László Lovász, József Pelikán, Katalin Vesztergombi: Discrete Mathematics, Typotex, Budapest, 2006 (in Hungarian, electronic notes)