

Name: Applied Mathematics		NEPTUN-code: NMXAM1EMNE	Number of periods/week: full-time: 3 lec + 1 sem + 0 lab
Credit: 5 Requirement: exam		Prerequisite: -	
Responsible: Imre RUDAS, Ph.D.	Position: professor, DSc	Faculty and Institute name: John von Neumann Faculty of Informatics Institute of Applied Mathematics	
Way of assessment: – 2 mid-term test and a written exam			
Competences			
Course description:			
The aim of the subject is to acquire mathematical knowledge that is needed for engineers of MSc level, particularly for computer engineers. The topics covered by the subject include the following: revision of basic differential calculus, fundamental concepts of number theory, prime tests, RSA cryptography, finite fields, systems of linear equations, matrices and their decompositions, vector spaces, eigenvalues and eigenvectors, diagonalizability, orthogonality, Gram-Schmidt orthogonalization process, singular value decomposition, symmetric bilinear forms and their definiteness, extreme values of functions with two variables and the definiteness of the Hessian matrix.			
Literature			
Sean Mauch: Introduction to Methods of Applied Mathematics or Advanced Mathematical Methods for Scientists and Engineers, 2004 (electronic notes) John K. Hunter: LECTURE NOTES ON APPLIED MATHEMATICS, 2009 (electronic notes)			