

Study programme(s): Applied mathematics (MAP)			
Course title: LINEAR ALGEBRA (P302)			
Lecturer(s): Ivica Bošnjak, Ana Slivkova, Boriša Kuzeljević			
Course status: compulsory			
ECTS points: 7			
Requirements:			
Course Objectives: Introduction of fundamental notions and techniques of linear algebra which will later be used in other courses.			
Learning Outcomes: At the end of the course, a successful student will be able to understand the basic principles and ideas of linear algebra and the role and importance of linear algebra in the system of mathematical disciplines. Students will master methods of solving linear equation systems and basic techniques of the matrix calculus. Student will be able to apply linear algebra techniques to solve a wide class of practical problems.			
Syllabus <i>Theoretical instructions</i> Determinants, systems of linear equations, vector space, basis and dimension of a vector space, matrices, quadratic matrix algebra, matrix rank, inverse matrix, linear transformations, matrix of a linear transformation, eigenvalues and eigenvectors, singular values, vector norm, matrix norms, similar matrices, matrices similar to a diagonal matrix. <i>Practical instructions</i> Calculation of the determinant, Gaussian elimination method, Cramer's rule, linear dependence and independence of vectors, subspace as a set of solutions of a system of linear equations, operations with matrices. Block matrices, matrix rank determination, adjoint matrix, inverse matrix calculation, matrix of a linear transformation, calculation of eigenvalues and eigenvectors, Gram-Schmidt orthogonalization procedure, application of vector and matrix norms.			
Literature 1. Z. Stojaković, I. Bošnjak, Elementi linearne algebre , Symbol, Novi Sad 2010. 2. Z. Stojaković, I. Bošnjak, Zadaci iz linearne algebre , PMF Novi Sad, Symbol, Novi Sad, 2005. 3. Z. Stojaković, D. Herceg, Linearna algebra i analitička geometrija , Univerzitet u Novom Sadu, Institut za matematiku, 1992.			
Number of active classes		Lectures: 3	Exercises: 3
Teaching methods: Classic teaching methods.			
Grading (maximum number of points 100)			
Pre-exam obligations		Final exam	
colloquia	50	oral exam	50