

Level: bachelor				
Course title: Linear Algebra				
Status: obligatory				
ECTS: 7				
Requirements: none				
Learning objectives Introducing the basic ideas and techniques of linear algebra to be used in mathematics and computer science.				
Learning outcomes Students should be able to understand the basic principles and ideas of linear algebra and to apply the techniques of matrix algebra and vector algebra to practical problems. In particular, the students will be able to determine the matrix of a linear transformation, the rank of a matrix and linear transformation, the inverse of a matrix, to find the eigenvalues and the eigenvectors of a square matrix and a linear transformation, and to diagonalize a square matrix when it is possible.				
Syllabus <i>Theoretical instruction</i> Vector spaces. Basis and dimension. Inner product. Orthogonality and Gramm-Schmidt process. Linear transformations. Matrices. Matrix of a linear transformation. Rank of a matrix. Regular matrices. Cayley-Hamilton theorem. Eigenvalues and eigenvectors. Similar matrices. Diagonalization of a matrix. <i>Practical instruction</i> Linear dependence and independence. Basis of a subspace. The sum and the intersection of subspaces. Orthogonality. Gramm-Schmidt process. Matrix algebra. Matrix of a linear transformation. Rank of a matrix. Inverse of a matrix. Applications of Cayley –Hamilton theorem. Eigenvalues and eigenvectors. Diagonalization of a matrix.				
Weekly teaching load				
Lectures: 3	Exercises: 2	Other forms of teaching: 0	Student research: 0	Other: 0