Study programme(s): Computer Science	
Level: bachelor	
Course title: Linear Algebra and Analytic Geometry	
Lecturer: Dragan Mašulović, Maja Pech	
Status: obligatory	
ECTS: 5	
Requirements: ---	

Learning objectives

In this course students shall acquire deeper knowledge of parts of linear algebra that are vital to computer science. Students will be able to analyze systems of linear equations, to solve geometric problems in 2D and 3D using techniques of analytic geometry and will understand fundamental concepts of vector spaces.

Learning outcomes

At the end of the course a successful student will be able to solve systems of linear equations, compute determinants, perform standard calculations in vector calculus, solve concrete geometric problems in 2D and 3D using strategies of analytic geometry, identify bases of vector spaces, compute the dimension of a vector space, understand and compute with linear and affine maps and compute matrix representation of linear and affine maps.

Syllabus
- Systems of linear equations
- Determinants
- Vector calculus
- Elements of analytic geometry in 2D and 3D
- Vector spaces over a field
- Basis, dimension, finitely dimensional vector spaces over a field
- Linear maps, matrices
- Affine maps, matrix representation

Literature

B. Solomon: "Linear Algebra - Geometry and Transformation", CRC Press, Chapman and Hall, 2015
Y. Lin: "Geometric Linear Algebra", World Scientific, 2005

Weekly teaching load

Lectures: 3	Exercises: 1	Practical Exercises: 0	Student research: 0	Other: **0**

Teaching methodology

Blackboard lectures, Blackboard exercises

Grading method (maximal number of points 100)

Pre-exam obligations	points	Final exam	points
Colloquium 1	**30**	*Oral exam*	*30*
Colloquium 2	**40**		