

Program	Level of studies		First cycle	
	Program name		Educational Physics	
Course name	LINEAR ALGEBRA FOR PHYSICISTS			
Course ID	Semester	Course status	ECTS credits	L+E
POT1711	I	MANDATORY	7	3+3
Lecturer	Prof. dr. Nacima Memić			
Aims and intended learning outcomes	<p>The aim of the course is that students learn mathematical operations with vectors and matrices, and with linear operators in general.</p> <p>It is expected that the student is able to perform operations with vectors and matrices, and to describe their various applications (solving linear equations, transformations, etc.);</p> <p>The student is able to describe properties of Euclidean space, curves and surfaces of the second order.</p>			
Course content				
<p>Vectors in the two and three-dimensional space. The scalar product of vectors and applications. Vector (cross) product and applications. The mixed product and application. Lines and planes in a three-dimensional space.</p> <p>Systems of linear equations, linear independence, criteria for the existence of unique solutions. Matrices, matrix operations, matrix equations. Elementary matrices, the inverse of a matrix, symmetric matrices and quadratic forms. Determinants.</p> <p>Vector space. The Gram - Schmidt process. Linear operators, linear transformations. Eigenvectors and Eigenvalues.</p> <p>Second-order curves and surfaces.</p>				
Student workload (hours)		Grading		
Lectures and Exercises	90	Assessment method	Points	
Exam preparation	85	Midterm exam	50	
Total	175	Final exam	50	
		Total	100	
Literature				
<ol style="list-style-type: none"> <li>1. A. Odžak, S. Odžak, Linearna algebra i analitička geometrija (sa primjenama), Univerzitet u Sarajevu 2017.</li> <li>2. Notes from the lectures.</li> <li>3. D.C. Lay, Linear algebra and its applications, Pearson education 2002.</li> </ol>				
Remarks				