1.	Course title	Linear algebra			
2.	Course code	CSEW308			
3.	Study program	CSE, EI, AIS, ICE, PITS			
4.	Unit offering the course	**FCSE**			
5.	Undergraduate/postgraduate/PhD	**Undergraduate**			
6.	Year/semester Second/Winter	7. ECTS: **6**			
8.	Teacher(s)	Prof., Zaneta Popeska, PhD, prof. Marija Mihova, PhD			
9.	Course prerequisites	High school math			
10.	Goals (competences): To provide students in computer sciences with an basic knowledge of vectors and matrices and their application in the field of informatics. To learn the concepts and methods of linear algebra and how they can be applied in solving computational problems that arise in computer science. After passing the exam of this course the students should be able to perform standard operations on matrices, to solve and give interpretation of the solution of the system of linear equations, describe the main properties of finitely dimensional vector spaces and linear transformation and apply the method of linear algebra for modeling and solving problems in computer sciences.				
11.	Course content: The algebra of matrices. Determinants, definition and properties. Elementary matrices and their application in solving of systems of linear equations. Geometric interpretation of the solutions of system of linear of one, two and three variables. Vectors in R^2 и R^3, coordinates, dot and cross product. Finitely dimensional real vector spaces: definition, examples, subspaces, linear combinations, independence, bases and dimensions, coordinate systems. Linear transformations: definitions, kernel, range, matrix representation of linear transformations, linear transformations in R^2 и R^3 (reflection, rotation, scaling, sliding), скалирање, искосување), change of basis, similar matrices, eigenvalues and eigenvectors, diagonalizability.Orthonormal basis and orthogonal projections.				
12.	Teaching methods: Lectures supported by slides, interactive lecturing, solving problems in class and in computer laboratory, individual work on homework and projects.				
13.	Total available time	6 ECTC x 30 hours = 180 hours			
14.	Distribution of the available time	30+30+15+ 105= 180 hours			
15.	Teaching activities	15.1.	Lectures	30 hours	
		15.2.	Training (labs, problem solving), seminar and team work	30 hours	
16.	Other activities	16.1.	Project work	15 hours	
		16.2.	Self study	20 hours	
		16.3.	Home work	70 hours	
17.	Grading				
	17.1.	Tests		90 points	
	17.2.	Solving problems in lab		10 points	
	17.3.	Active participation		points	
18.	Grading criteria	to 50 points		5 (five) (F)	
		from 51 to 60 points		6 (six) (E)	

				from 61 to 70 points	7 (seven) (D)	
				from 71 to 80 points	8 (eight) (C)	
				from 81 to 90 points	9 (nine) (B)	
				from 91 to 100 points	10 (ten) (A)	
19.	Final exam prerequisites			Realised activities in 15.1 and 15.2		
20.	Course language			Macedonian and English		
21.	Quality assurance methods			Internal evaluation and surveys		
22.	Literature					
	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	Gilbert Strang	Introduction to Linear Algebra, 4th Edition,	Wellesley-Cambridge Press and SIAM	2009
	22.2.	Mandatory				
		No.	Authors	Title	Publisher	Year
		1.	Jim Hefferon	Linear algebra	http://joshua.smcvt.edu/linearalgebra	2012