

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Computing and Informatics		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Matrix Computing		
Lecturer (for lectures)		Džunić S. Jovana		
Lecturer/associate (for exercises)		Stankov D. Stefan		
Lecturer/associate (for OFE)				
Number of ECTS	3	Course status (obligatory/elective)	Elective	
Prerequisites				
Course	Mastering fundamentals of applied linear algebra for data science and machine learning.			
Course outcomes	Connecting different fields of modern applied mathematics. Capacitate students to use and experiment in computing using Python built-in functions.			
Course outline				
Theoretical teaching	Partitioned matrices. Special type matrices: orthogonal, unitary, symmetric, hermitian, banded, positive definite, non negative, stochastic matrices. Matrix decompositions and applications: LU, QR, spectral, SVD. Data fitting, FFT, transformations. Eigenvalues computing. Perron-Frobenius theory. Markov chains.			
Practical teaching (exercises, OFE, study and research)	Application of matrix methods is developed through a class of numerical algorithms. Python computing environment is used for testing and experimenting with data.			
Textbooks/references				
1	J. Džunić , e-book: Matrix computing (in Serbian)			
2				
3				
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	0	0	0
Teaching methods	Lectures, computing exercises, projects.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures		Written exam	30	
Exercises		Oral exam	30	
Colloquia				
Projects	40			