

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Common		
Type and level of studies		Doctoral studies		
The name of the course		Numerical Linear Algebra		
Lecturer (for lectures)		Džunić S. Jovana		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives				
The goal of this course is to enable students to design and analyze numerical techniques of numerical linear algebra. To prepare them for independent research and responsible communication of results. To establish theoretical foundation for error and stability analysis and perturbation theory. Capacitate students to apply and experiment with modern technical computing software.				
Course outcomes				
Design and apply efficient numerical tools. Understand capabilities and limitations of computing algorithms and algebra systems. Capability to search, analyze and synthesize data and information, with the use of adequate software.				
Course outline				
Theoretical teaching				
Introduction to MATLAB. Introduction to LaTeX. Errors. Vector and matrix norm. Perturbation, conditioning, stability. Matrix transformations and applications. Dimension reduction. Least squares problems.				
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
1	C. Meyer, Matrix analysis and applied linear algebra, SIAM, 2000			
2	A. Bjork, Numerical methods in Matrix computations, Springer, 2015			
3	N. Higham, Accuracy and stability of numerical algorithms, SIAM, 1996			
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
3	0	0	0	0
Teaching methods				
Lectures, projects.				
Grade (maximum number of points 100)				
Pre-exam duties		Points	Final exam	Points
Activity during lectures			Written exam	
Exercises			Oral exam	40
Colloquia				
Projects		60		