

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Electrical Power Engineering		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Numerical Analysis		
Lecturer (for lectures)		Džunić S. Jovana		
Lecturer/associate (for exercises)		Džunić S. Jovana		
Lecturer/associate (for OFE)				
Number of ECTS	6	Course status (obligatory/elective)	Elective	
Prerequisites				
Course Laying foundation for numerical and computing mathematics.				
Course outcomes Capacitate students for applications of numerical mathematics in their field of profession.				
Course outline				
Theoretical teaching	Introduction to error analysis: significant figures, error propagation, accuracy and precision, stability. Iterations and convergence. Systems of linear equations, exact and iterative procedures. Matrix inverse. Approximation in R: Interpolation by polynomials, general interpolation problem. Interpolation by trigonometric polynomials. FFT. Least squares data fitting. Nonlinear equations and systems: Newton's method and modifications. Initial value problem. Stopping criterion. Numerical integration. Solving differential equations with iterations. Applying computing software.			
Practical teaching (exercises, OFE, study and research)	Exercises in computing and software application.			
Textbooks/references				
1	J. Džunić, e-book: Numerical analysis (in Serbian)			
2	J. Kiusalaas, Numerical methods in engineering with MATLAB, Cambridge University Press, 2016			
3	G. Miller, Numerical analysis for engineers and scientists, Cambridge University Press, 2014			
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	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		10	Written exam	20
Exercises		10	Oral exam	20
Colloquia				
Projects		40		