

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		Methods for Steady-state Electromagnetic Fields Calculation		
Lecturer (for lectures)		Cvetković N. Nenad, Perić T. Mirjana, Vučković N. Ana		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives				
The aim of the subject is to upgrade the student's knowledge of methods for steady-state electromagnetic field calculation. Also, students are capable to implement those methods in their own software tools for solving electromagnetic field problems as well as to use commercial software for electromagnetic fields analysis.				
Course outcomes				
Students are capable to use appropriate analytical and numerical methods to perform the characterization of the steady-state electromagnetic field within the researched systems, to analyze the obtained results and make appropriate conclusions.				
Course outline				
Theoretical teaching				
Electromagnetic field theory. Electromagnetic problems classification in terms of time dependence. Equations of the steady-state electromagnetic field. Analytical methods (image theorem, method of separation of variables, conformal mapping). Approximate and numerical methods (estimation method, Howe's method, finite difference method, finite element method, boundary element method, method of fictitious sources, equivalent electrodes method). Development and application of own software tools and application of commercial software for the electromagnetic field analysis.				
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
1	D. M. Veličković, Electromagnetics - the first book (in Serbian), Faculty of Electronic Engineering, Niš, 1994, 1999 and 2003.			
2	D. Veličković, „Electrostatic fields calculation methods“ (in Serbian), Stil, Podvis, 1982.			
3	B. Popović, Electromagnetics, Belgrade: Akademska misao, 2004. □			
4	D. M. Veličković et al., Collection of solved examples from Electromagnetics - I part (in Serbian), Faculty of Electronic Engineering of Niš, Niš, 2000.			
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, discussions, scientific work			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam		Points
Activity during lectures		Written exam		
Exercises		Oral exam		50
Colloquia				
Projects	50			