Specification for the book of courses

Study program	Electrical Engineering and Computer Science		
Module	Electron Devices and Microsystems		
Type and level of studies	Undergraduate Academic Studies		
The name of the course	Differential equations		
Lecturer (for lectures)	Marinković D. Slađana, Rančić Z. Lidija		
Lecturer/associate (for exercises)	Marinković D. Slađana		
Lecturer/associate (for OFE)			
Number of ECTS	5	**Course status (obligatory/elective)**	Elective
Prerequisites			
Course objectives	Gaining basic mathematical knowledge of differential equations. Developing skills of recognizing appropriate methods depending on real problem and application in practice.		
Course outcomes	Students' competence to put the gained knowledge into practice and studying. Competence to identify and define the problems, develop mathematical models, choose the appropriate methods for their solving and the application of methods.		
Course outline			
Theoretical teaching	Ordinary differential equations (ODE): Cauchy and boundary value problems, typess of solutions, methods for exact solving. Systems of ODE. Numerical solving of Cauchy problem ODE: Euler method, multistep methods, Runge-Kutta methods. Numerical solving of boundary problem ODE: finite differences method, variational methods. Error analysis. Stability. Partial differential equations (PDE): classification of problems and equations. Analytic methods for solving PDE. Numerical methods for solving PDE: finite differences method, finite element method.		
Practical teaching (exercises, OFE, study and research	Exercises of knowledge gained from the lectures. Practicing selection of methods for solving ODE and PDE and their application.		
Textbooks/references			
1	Gradimir V. Milovanović, Differential equations, University of Niš, Faculty of Electronic Engineering, 2006. (Serbian)		
2	Gradimir V. Milovanović, Numerical Analysis III, Naučna knjiga, Belgrade, 1985. (Serbian)		
3	Lj.D. Petković, Numerical Analysis, University of Niš, Faculty of Mechanical Engineering, 2003. (Serbian)		
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, exercises, consultations.

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	40		
Projects			