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		Robust Control		
Lecturer (for lectures)		Veselić R. Boban, Mitić B. Darko		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	**Course status (obligatory/elective)**	Elective	
Prerequisites				
Course objectives	Introduction to the problems of model uncertainties and modeling errors, robust stability principles as well as control systems design methods for providing robust stability and robust performance.			
Course outcomes	Provide the students with theoretical knowledge necessary for robust control systems design depending on present model uncertainties and given system specifications. Train the students to use computer support in analysis and synthesis of robust control systems.			
Course outline				
Theoretical teaching	Model uncertainties of linear dynamical systems and their representation in time and frequency domain. H2 and H∞ spaces and norms. Specifications of performances and limitations. Control plant model reduction. Model uncertainties and robustness. Robust stability and performance analysis. Linear fractional transformations. Structured singular value. Controller parameterization. Algebraic Riccati equation. H2 и H∞ control. Controller order reduction. H∞ loop-shaping.□			
Practical teaching (exercises, OFE, study and research				
Textbooks/references				
1	K. Zhou, J. Doyle, Essentials of Robust Control, Prentice-Hall, 1998.			
2	S. Skogestad, I. Postlethwaite, Multivariable Feedback Control, John Wiley & Sons,1996.			
3				
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/consultations (depending on the number of students); study and research work (insight into literature, problem analysis, finding solutions, writing and presentations of individual paper)			

Grade (maximum number of points 100)			
Pre-exam duties	**Points**	**Final exam**	**Points**
Activity during lectures	0	**Written exam**	0
Exercises	0	**Oral exam**	50
Colloquia	0		
Projects	50		