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	Statistical Signal Processing		
Lecturer (for lectures)	Đorđević T. Goran		
Lecturer/associate (for exercises)			
Lecturer/associate (for OFE)			
Number of ECTS	10	**Course status (obligatory/elective)**	Elective
Prerequisites			
Course objectives	Improvement of the knowledge in the field of detection of signals transmitted over channels with intersymbol interference, iterative decoding and simulation of telecommunication systems.		
Course outcomes	The students will be able to conduct research activities in the field of optimal receivers for systems with intersymbol interference. They will have knowledge in the field of modeling and simulation of telecommunication systems in order to determine and improve their performance.		
Course outline			
Theoretical teaching	Stochastic signals. Systems for adaptive signal processing of stochastic signals. Adaptation algorithms. System identification. Prediction. Adaptive interference suppression. Optimal receivers for systems with intersymbol interference. Equalization methods: linear equalization, feedback equalization, iterative equalization. Adaptive linear equalization. Adaptive feedback equalization. Application of Viterbi algorithm to equalization. Iterative decoding. BCJR (Bahl-Cocke-Jelinek-Raviv) algorithm. Monte Carlo simulations and importance sampling method. Software implementations in MATLAB.		
Practical teaching (exercises, OFE, study and research			
Textbooks/references			
1	D. B. Drajić, Introduction to Statistical Telecommunications Theory (in Serbian), Akademska misao, Beograd, 2003.		
2	M. C. Jeruchim, P. Balaban, K. Sam Shanmugan, Simulation of Communication Systems – Modeling, Methodology, and Techniques, Kluwer Academic/Plenum Publishers, NY, USA, 2000.		
3	S. Haykin, Adaptive Filter Theory, 4th edition, Prentice Hall, NJ, USA, 2002.		
4	S. Lin, D. J. Costello Jr., Error Control Coding, 2nd edition, Prentice Hall, NJ, USA, 2004.		
5	J. G. Proakis, M. Salehi, Digital Communications, 5th edition, McGraw-Hill, New York, USA, 2007.		

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.

Grade (maximum number of points 100)

Pre-exam duties	Points	Final exam	Points
Activity during lectures	10	Written exam	
Exercises		Oral exam	50
Colloquia			
Projects	40		