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	Communication Algorithms and Applications		
Lecturer (for lectures)	Nikolić B. Zorica		
Lecturer/associate (for exercises)			
Lecturer/associate (for OFE)			
Number of ECTS	10	**Course status (obligatory/elective)**	Elective
Prerequisites			
Course objectives	Mastering the skills necessary to implement the major communication algorithms used in the detection and synchronization in both software and hardware implementation.		
Course outcomes	Mastering the implementation of adaptive algorithms in the software and hardware in order to provide some system functions.		
Course outline			
Theoretical teaching	The Wiener filter and linear prediction. Adaptive transversal filters. LMS, RLS allgorithms and their variations. Adaptive channel equalization. DFE equalization and its alternative confgurations. Synchronization. Algorithms for timing and carrier phase recovery. Algorithms for carrier frequency recovery. Synchronization in spread spectrum systems. Implementation of communication algorithms. The application of communication algorithms in DSP, FPGA and ASCI circuits.		
Practical teaching (exercises, OFE, study and research	Students work independently on the project (project presentation with discussion).		
Textbooks/references			
1	Nevio Benvenuto and Giovanni Cherubini: Algorithms for Communications Systems and their Applications, John Wiley & Sons Ltd, 2002.		
2			
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	Giving lectures. Students work independently on the project (project presentation with discussion).

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		