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			RF Systems Architectures	
Lecturer (for lectures)			Jovanović S. Goran	
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	**Course status (obligatory/elective)**		Elective
Prerequisites				
Course objectives	Acquainted with the advanced techniques for high-frequency circuits and systems design. Modern architecture of transmitter and receiver. Gaining practical knowledge of radio links design, antennas design and radio wave propagation.			
Course outcomes	Students need to acquire theoretical and practical knowledge necessary for the realization of complex projects in wireless communication.			
Course outline				
Theoretical teaching	Transmitter and receiver architectures. Technologies for RF circuits production. Optimization of noise factors, intermodulation distortion, and stability factors in low noise amplifiers and balancing mixers. Jitter and phase noise in voltage controlled oscillators with negative transconductance and PLL frequency synthesizers. RF power amplifiers and duplexers. Multi standard transceiver. Radar, wireless sensor networks, special antenna systems, RFID, navigation systems.			
Practical teaching (exercises, OFE, study and research	Radio transceiver project. RFID reader project. Doppler radar project.			
Textbooks/references				
1	Benzad Razavi, RF Microelectronics, Prentice Hall, 1998.			
2	P.-I. Mak, Seng-Pan U, R. P. Martins, Analog-Baseband Architectures and Circuits for Multistandars and Low Voltage Wireless Transceivers, Springer, 2007.			
3	R. Ludwig, P. Bretchko, RF Circuit Design: Theory and Applications, Prentice Hall, 2000.			
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.			

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		