

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Electron Devices and Microsystems		
<b>Type and level of studies</b>		Undergraduate Academic Studies		
<b>The name of the course</b>		Microwave Technique and Electronics		
<b>Lecturer (for lectures)</b>		Maleš-Ilić P. Nataša, Pronić-Rančić R. Olivera		
<b>Lecturer/associate (for exercises)</b>		Joković J. Jugoslav, Dimitrijević Ž. Tijana		
<b>Lecturer/associate (for OFE)</b>		Joković J. Jugoslav, Dimitrijević Ž. Tijana		
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
Acquiring theoretical and practical knowledge in the field of microwave techniques and electronics .				
<b>Course objectives</b>				
Acquire knowledge of the theory of EM wave propagation by transmission lines. Ability to use Smith chart in analysis / design of microwave circuits. Acquire knowledge of the wave parameters and ability to use them in the analysis and design of microwave circuits. Understand microstrip lines and acquire the ability to analyse, synthesize, and implement microstrip lines in microwave devices. Understand semiconductor components and learn the basic principles of the design of active microwave devices. Ability to use specialized software tools for analysis and optimization of microwave circuits and devices				
<b>Course outcomes</b>				
<b>Course outline</b>				
<b>Theoretical teaching</b>				
Introduction. Characteristics of microwaves. Propagation by transmission lines. The characteristic parameters of transmission lines. Smith chart and its application in the analysis of microwave circuits. Techniques for impedance matching of microwave circuits. Microstrip lines. Wave matrix. Introduction to microwave semiconductor devices. Microwave diodes. Microwave transistors. Hybrid and monolithic microwave integrated circuits. RF and microwave transistor amplifiers and oscillators.				
<b>Practical teaching (exercises, OFE, study and research)</b>				
Computational exercises. Practical work in laboratory.				
<b>Textbooks/references</b>				
1	Mikrotalasna tehnika - I deo, B. Milovanović, V. Marković, N. Maleš - Ilić, O. Pronić - Rančić, Unigraf, 2009.			
2	Bratislav Milovanović et al., Mikrotalasna tehnika – zbirka zadataka, Elektronski fakultet u Nišu, 2002			
3	O.Pronić-Rančić, V. Marković, N.Maleš-Ilić, B.Milovanović, Mikrotalasna elektronika, Univerzitet u Nišu, Elektronski fakultet, 2013			
4	David Pozar, Microwave Engineering, third edition, John Wiley and Sons, Inc., 2005.			
5				
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
2	2	1	0	0
<b>Teaching methods</b>				
Lectures. Computational exercises. Laboratory work. Homeworks. Consultations.				
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>		<b>Points</b>	<b>Final exam</b>	<b>Points</b>
<b>Activity during lectures</b>		5	<b>Written exam</b>	20
<b>Exercises</b>		15	<b>Oral exam</b>	20
<b>Colloquia</b>		40		

Projects			
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