

## 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>		Electronics Materials Design		
<b>Lecturer (for lectures)</b>		Paunović V. Vesna, Pešić M. Biljana		
<b>Lecturer/associate (for exercises)</b>		Đorđević D. Miloš		
<b>Lecturer/associate (for OFE)</b>		Đorđević D. Miloš		
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>				
Introduction to the principles prognosis of the material properties with special emphasises on the design and production of materials for electronics and nanomaterials with desired properties.				
<b>Course outcomes</b>				
Students become familiar with the basic scheme of materials properties prognosis, starting with the structure of materials, modern electronics requirements until the appropriate technology. Sufficiently theoretical and practical knowledge to design a material with pre-defined characteristics.				
<b>Course outline</b>				
<b>Theoretical teaching</b>				
Prognosis of the materials properties (relationship between structure, properties and materials technology). Selection and design of electronics materials. Database of electronics materials. The basic and supporting electronics materials. Materials for microsystems. Prognosis and design of metallic, ceramic and polymeric materials. Design of noncrystalline and organic materials. Composite materials. Superconducting, supermagnetic, semiconducting, optoelectronic and piezoelectric nanomaterials.				
<b>Practical teaching (exercises, OFE, study and research)</b>				
Practical exercises that are specific presentation of properties, structures and technologies for most widely used materials in modern electronics and microelectronics.				
<b>Textbooks/references</b>				
1	Eugene A. Irene, Electronic materials science, John Wiley & Sons, Inc.2005			
2	W.D.Callister, Materials science and engineering- an introduction, Wiley&Sons, 2003.			
3	S. O. Kasap, Principles of Electronic Materials and Devices, McGraw-Hill, 2002			
4	K.M. Gupta, Nishu Gupta, Advanced Electrical and Electronics Materials: Processes and Applications, John Wiley & Sons, 2015			
5	W. D. Callister, D.G.Rethwisch, Materials Science and Engineering, John Wiley & Sons Inc, 2014			
<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, consultations, practice exercises and seminars				
<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>		15	<b>Written exam</b>	25
<b>Exercises</b>		15	<b>Oral exam</b>	25
<b>Colloquia</b>				
<b>Projects</b>		20		