

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Electrical Power Engineering		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Electrotechnical Materials		
Lecturer (for lectures)		Mitić V. Vojislav, Paunović V. Vesna		
Lecturer/associate (for exercises)		Marjanović B. Miloš		
Lecturer/associate (for OFE)		Marjanović B. Miloš		
Number of ECTS	6	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Students will gain basic knowledge on materials and technological processes and will be introduced to practical application of theoretical knowledge in technological processes, particularly in the fabrication of electronic materials for energy applications. They will be given an insight into the latest developments in the field of advanced materials, especially in modern energy applications and alternative and new energy sources.			
Course outcomes	The subject seeks to develop the capacity to understand the structure-properties-application relationship and the ability to design materials with controlled properties, particularly in the field of energy			
Course outline				
Theoretical teaching	Introduction to materials science. Prognosis of materials' properties. Fundamentals of materials physics. Materials structure, properties and technology . Electronic structure. Methods in materials science. Symmetry in solid objects in nature. Fractals, Phase diagrams. Thermodynamic processes. Conductive materials for energy applications. Semiconducting materials and technologies. Ceramics for electronics. Ferroelectric materials. Dielectric materials. Magnetic materials. Intelligent materials for sensors and transducers. The application of electronic materials in electronic components for energy applications.			
Practical teaching (exercises, OFE, study and research)	Laboratory and computational exercises in relevant fields			
Textbooks/references				
1	Vojislav V. Mitić, Momčilo M. Ristić, Electrical materials, (in the process of publishing, in Serbian)			
2	Vojislav V. Mitić, Structure and electrical properties of BaTiO ₃ ceramics, Belgrade, Endowment Andrejević, 2001. (in Serbian)			
3	M. M. Ristic, Principles of Material Science, SANU Special Edition, DCXVII, (1993). (in Serbian)			
4	D.Raković, Physical basics and characteristics of electrical materials, Belgrade, (1997) (in Serbian)			
5	W.D.Callister, "Materials Science And Engineering an introduction, John Wiley&Sons Ltd, 2003			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	1	0	0
Teaching methods	Lectures, consultations, computational and laboratory exercises			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	10	Written exam	15	
Exercises	20	Oral exam	15	
Colloquia	30			
Projects	10			