

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		Electromechanical Energy Conversion		
Lecturer (for lectures)		Mitrović N. Nebojša		
Lecturer/associate (for exercises)		Banković G. Bojan, Kostić Z. Vojkan		
Lecturer/associate (for OFE)		Banković G. Bojan, Kostić Z. Vojkan		
Number of ECTS	6	Course status (obligatory/elective)	Obligatory	
Prerequisites				
Course objectives	Acquiring basic knowledge in the field of electromechanical energy conversion, electrical machines and electrical drives.			
Course outcomes	Understanding the basic principles of electromechanical energy conversion. Understanding the basic characteristics and operation of rotating machines and transformers.			
Course outline				
Theoretical teaching	The basic laws and principles of electromechanical energy conversion. Magnetic and electric circuit of electrical machines. Power balance of general machines. Equations of motion. Electromagnetic torque. Examples of single and multiple excitation system. The working principle of the basic types machines. Magnetic field of DC and AC machines. Magnetic forces. Windings of electric machines. Electromotive forces. Mechanical characteristics. DC machines. Synchronous machines. Inductions machines. Power transformers.			
Practical teaching (exercises, OFE, study and research)	Practical work are held in the laboratory. Recognition of certain types of machinery. Basic components and structures. Commissioning of certain types of machines. Mechanical characteristics of electric machines.			
Textbooks/references				
1	Jacek F. Gieras, "Electrical machines : Fundamentals of electromechanical energy conversion", Tailor & Francis, 2017			
2	S. Vukosavic, "Electrical Mmachines", Springer, 2013.			
3	S. K. Sahdev , "Electrical machines", Cambradge University Press, 2017			
4	A.E. Fitzgerald, Charles Kingley, Stephen Umans, "Electric Machinery", McGraw-Hill, 2003			
5	D. White, H. Woodson, "Energy Conversion", John Willey&Sons, New York, 1998			
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	Classes are conducted through lectures and exercises. Lectures use modern teaching methods. Auditory exercises with numerous example refer students to independently solve problems from engineering practice. Part of the exercise is performed in the laboratory in order to obtain the steady state characteristics of electrical machines.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	5	Written exam	30	
Exercises	15	Oral exam	20	
Colloquia	30			
Projects				