

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		Electrical Machines and Transformes - Selected Chapters		
Lecturer (for lectures)		Stajić P. Zoran		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives		Main topic of this course is to introduce students with specific working modes of electrical machines and transformers but also with potential applications of the theory in solving various practical problems that arise during the exploitation.		
Course outcomes		Students capable to apply the theory of electrical machines and transformers to solve various practical problems that arise during the exploitation. Depending on the types of problems, students will be able to make the optimal choice of measuring equipment needed to determine the model parameters. Also, students will be introduced with the techniques with which it is possible to see electric machines and transformers as "measuring device" with which different system parameters can be obtained.		
Course outline				
Theoretical teaching		Description of a number of specific problems arising during the exploitation of electrical machines and transformers in various industries. Analyses and choice of approach for problem solving. Optimal selection of measuring and test equipment for testing in service conditions. Analysis and choice of optimal mathematical model for a given service conditions. Useful softwares for conducting different analysis. The link between theory and practice. Examples of best practice in the implementation of simple and complex models, depending on the available data and the results of the experiments. Analysis of the obtained results. Observation of electric machines and transformers as a "measuring device" based on its behavior to obtain detailed information of the systems in which these devices operate.		
Practical teaching (exercises, OFE, study and research)		Part of the course is conducted through mentoring and part through individual research and study work in the field of electrical machines and transformers. Through mentoring, students are introduced with the course content. The study and research work is based on active study of primary scientific sources, on numerical simulations and organizing and carrying out experiments in service conditions of electrical machines and transformers.		
Textbooks/references				
1	P. C. Krause, O. Wasynczuk, S. Sudhoff, "Analysis of Electric Machinery and Drive Systems", IEEE Press 2002			
2	M. J. Heathcote, "J&P Transformer Book", Elsevier, Book Aid International, England, 2007.			
3	S. Vukosavic, "Electrical Machines", Academic mind, Belgrade, 2010. (in Serbian)			
4	J. Hindmarsh, "Electrical Machines and their Applications", Faculty of U.M.I.S.T. England, 1984.			
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 via the presentation, discussions and consultations. Assistance in performing experiments and prepare students for independent research and writing scientific papers.		
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		