

## Specification for the book of courses

<b>Study program</b>		Electrical Power Engineering		
<b>Module</b>		Electrical Power Engineering		
<b>Type and level of studies</b>		Master studies		
<b>The name of the course</b>		Operation of Electric Power Networks		
<b>Lecturer (for lectures)</b>		Korunović M. Lidija, Janjić D. Aleksandar		
<b>Lecturer/associate (for exercises)</b>		Anastasijević B. Ivan		
<b>Lecturer/associate (for OFE)</b>				
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Obligatory	
<b>Prerequisites</b>				
<b>Course objectives</b>	Introducing the basic terms regarding operation of electric power networks to the students. Consideration of the parameters of daily load curves. Introducing the term of static state estimation and the way of identification of unknown state variables. Introducing the term of security and economic aspects of operation of electric power networks. Consideration of load variations during the year and daily load curve forecasting. Introducing the terms tariffs and tariff systems for calculations of purchase and sale of electricity, changes in distribution of electric energy, and models of energy market organization.			
<b>Course outcomes</b>	Students are habilitated to perform state estimation of electric power systems and load flow calculation in different abnormal operating regimes of these networks. Additionally, they are habilitated to solve the problems of economic dispatch of electric power systems.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	Daily load curve. Static state estimation. Security of electric power networks. Operating regimes and security. Static security of electrical interconnections. Economic aspects of operation of electric power networks. Economic dispatch. Optimal power flow. Load variations during the year and daily load curve forecasting. Tariffs and tariff systems for calculations of purchase and sale of electricity. The changes in electricity distribution. Models of energy market organization.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Exercises include solution of computational tasks in the areas of theoretical lectures. The tasks are illustrative examples for the solution of concrete problems that habilitate students to solve engineering problems individually.			
<b>Textbooks/references</b>				
1	M. S. Čalović, A. T. Sarić, Operation of Electric Power Systems (in Serbian), Beopres, Beograd, 1999.			
2	M. S. Čalović, A. T. Sarić, P. Č. Stefanov, Workbook with Solved Examples in Power System Operation (in Serbian), Faculty of Technical Sciences Čačak, Čačak, 2006.			
3	M. S. Čalović, A. T. Sarić, P. Č. Stefanov, Power System Operation in Deregulated Energy Market in the Conditions of Free Market (in Serbian), Faculty of Technical Sciences Čačak, Čačak, 2005.			
4	D. P. Popović, Static Security of Electrical Interconnections (in Serbian), Electrical Engineering Institute Nikola Tesla, Belgrade, 2004.			
5	A. Gomez-Exposito, A. J. Conejo, C. Canizares, Electric Energy Systems - Analysis and Operation, CRC Press, Taylor & Francis Group, Boca Raton, 2009.			
<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	0		
<b>Teaching methods</b>	Theoretical teaching includes classic lectures and the lectures in electronic form. Exercises include the solution of computational tasks on the board.			
<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>		<b>Written exam</b>	25	
<b>Exercises</b>		<b>Oral exam</b>	25	
<b>Colloquia</b>	50			
<b>Projects</b>				