

## 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>		Power Systems Planning		
<b>Lecturer (for lectures)</b>		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>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>				
Basic principles of electricity networks and system planning. Basic techniques of load forecast, development planning and optimization of electricity networks. электроэнергетских мрежа.				
<b>Course outcomes</b>				
Theoretical knowledge and practical knowledge. Students will be capable for developing the general development concept of different voltage level power systems .				
<b>Course outline</b>				
<b>Theoretical teaching</b>				
Definition and types of planning. Planning principles. Planning goals and objectives; optimization objectives and constraints. Load and generation forecast .Investment and operation costs of transmission lines. Calculation of energy losses. Engineering economy basics. Actualization principle. Uniform yearly equivalent. Amortization. Ranking of investments. Reliability of generation system and networks. Optimization techniques: linear programming, integer programming, dynamic programming, multicriteria optimization.				
<b>Practical teaching (exercises, OFE, study and research)</b>				
General problems. Generation and load forecast. Planning and economy. Planning of new generation sources. Planning of transmission lines development. Distribution network planning.				
<b>Textbooks/references</b>				
1	M. Calovic, A. Saric, M. Mesarovic, P. Stefanov. Planning of powers systems in deregulated environment (In Serbian) Faculty of technical sciences, Cacak, 2011			
2	M. Calovic, A. Saric, M. Mesarovic, P. Stefanov. Planning of powers systems in deregulated environment - worked examples (In Serbian) Faculty of technical sciences, Cacak, 2011			
3				
4				
5				
<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>				
Oral lectures and calculation examples on board. Students are working autonomously, with assistant supervision. Consultations.				
<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>	5	<b>Written exam</b>	30	
<b>Exercises</b>		<b>Oral exam</b>	20	
<b>Colloquia</b>	30			
<b>Projects</b>	15			