

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		Planning and Operation of Power Networks		
Lecturer (for lectures)		Janjić D. Aleksandar		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives				
Introduction to the planning and operation of power networks principles in deregulated environment. The emphasis is on the usage of moder optimization techniques for the maintenance planning and unit comitment for the participation in the spot market.				
Course outcomes				
Students will be capable for the application of appropriate optimization technique for the short term and long term planning of operation in power networks. Furthermore, they will be capable to performe the risk analysis of assets evaluation and investment planning.				
Course outline				
Theoretical teaching				
Planning and the operation in the deregulated market. Decision making techniques in restructured power sector using fuzzy logic. Short term and long term maintenance planning of generation units.Short term and long term maintenance planning of networks. Coordination between short term and long term planning. Short term pricing and unit commitment on the market. Risk analysis.				
Practical teaching (exercises, OFE, study and research)				
Part of this course is effectuated through the independent work regarding the application of modern optimization techniques. Active litterature review, numerical simulations.				
Textbooks/references				
1	M. Shahidehpour, M. Marwali : "Maintenance scheduling in restructured power systems", Kluwer academic publishers, USA, 2000..			
2	Y-H. Song: "Modern optimization techniques in power systems", Kluwer academic publishers, USA, 1999.			
3	M. Shahidehpour, H. Yamin, Zuyi Li: " Market Operations in Electric Power Systems: Forecasting, Scheduling, and Risk Management", IEEE 2002			
4				
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				
Litterature review. Consultations. Assistance with the simulations. Independent work at optimization problem solving.				
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		