

Specification for the book of courses

Study program		Electrical Power Engineering		
Module		Electrical Power Engineering		
Type and level of studies		Master studies		
The name of the course		Powerline Telecommunications		
Lecturer (for lectures)		Nikolić B. Zorica, Milošević D. Nenad		
Lecturer/associate (for exercises)		Milošević D. Nenad		
Lecturer/associate (for OFE)				
Number of ECTS		5	Course status (obligatory/elective)	Elective
Prerequisites				
Course		Acquiring the basic knowledge related to the data transmission over power lines.		
Course outcomes		Theoretical knowledge.		
Course outline				
Theoretical teaching	Introduction to Telecommunications. Signal Analysis. Methods for Signal Digitalization. Powerline Communications (PLC). PLC in the Telecommunications Access Area. Access Technologies. Powerline Communication Systems. Specific PLC Performance Problems. PLC Network Characteristics. Network Topology. Features of PLC Transmission Channel. Impact of Disturbances and Data Rate Limitation. Realization of PLC Access Systems. Architecture of the PLC Systems. Modulation Techniques for PLC Systems. Error Handling. PLC MAC Layer. Structure of the MAC Layer. Multiple Access Scheme. Traffic Control. Performance Evaluation of Reservation MAC Protocols. Reservation MAC Protocols for PLC. Signaling MAC Protocols. Protocol Comparison.			
Practical teaching (exercises, OFE, study and research)	Demonstrative laboratory exercises in the area of signal analysis and modulation. Preparation and presentation of a seminar paper within OFE.			
Textbooks/references				
1	Halid Hrasnica, Abdelfatteh Haidine and Ralf Lehnert: Broadband Powerline Communications Networks- Network Design, John Wiley & Sons Ltd, 2004.			
2	J. Anatory,N. Theethayi :Broadband Power-line Communication Systems, WIT Press, 2010.			
3				
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	0		
Teaching methods	Oral teaching in the classroom. Demonstrative laboratory exercises in the area of signal analysis and modulation. Preparation and presentation of a seminar paper within OFE. Consultation.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	10	Written exam		
Exercises		Oral exam	30	
Colloquia	20			
Projects	40			