

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		Intelligent Control		
Lecturer (for lectures)		Milojković T. Marko, Nikolić S. Saša		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives				
Mastering advanced intelligent control techniques, designing intelligent control logic, optimizing the operation of intelligent systems, and designing and application of hybrid intelligent systems. Training for using internet platforms that are of interest for successful engagement in scientific research.				
Course outcomes				
Mastering algorithms of intelligent systems for classification and optimization of databases, different types of learning of neural networks, practical realization of neural networks for different control tasks, principles of unsupervised learning and design of models of intelligent systems with unsupervised learning, methods for realization of Recommender systems, implementation of intelligent systems and their algorithms when working with Large Scale Machine Learning, the use of ANFIS in control logic of dynamical systems.				
Course outline				
Theoretical teaching				
Intelligent systems for classification and database optimization. Types of neural network learning. Recommender systems. Large Scale Machine Learning. Hybrid Intelligent Systems. ANFIS.				
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
1	S. V. Kartalopoulos, Understanding Neural Networks and Fuzzy Logic: Basic Concepts and Applications, Wiley-IEEE Press, 1995			
2	M. Negnevitsky, "Artificial Intelligence", Addison Wesley, 2002.			
3	H. Nguyen, N. Prasad, "A First Course in Fuzzy and Neural Control", Chapman & Hall, 2003.			
4	L. Chambers, "The Practical Handbook of Genetic Algorithms", Chapman & Hall, 2001.			
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/consultations (according to the number of students); study research work (insight into literature, problem analysis, finding solutions, writing and presentations of independent work).				
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		