



COURSE DATASHEET

Semester:	2016/17/2
Course:	Introduction into the methods of soft calculation
Code:	VEMIMAB512L
Responsible department:	Department of Electrical Engineering and Information Systems
Department code:	MIVIR
Responsible instructor:	Dr. Ágnes Starkné Werner

Course objectives:

The aim of this course is to acquaint students with fuzzy, neural and genetic systems and simulation possibilities.

Course content:

Deployment to the fuzzy systems: the fuzzy conception, definitions (fuzzy sets, membership functions), fuzzy set operations inference Fuzzy relation, fuzzy relation operations, language variables, fuzzy rules Fuzzy logic and inference Fuzzy control systems: fuzzy rule sets, fuzzification, defuzzification, fuzzy inference engine; presentation of application examples MATLAB – Use of Fuzzy Logic Toolbox, presentation of application examples
Introduction to the neural networks: definitions, functionality Basic conceptions and models: neuron models (McCulloch-Pitts neuron, discrete and continuous perceptron), neural network models Learning of neural networks Problem domain of application, application areas MATLAB – Use of Neural Network Toolbox, presentation of application examples

Requirements, evaluation and grading:

The condition of signature is a test during the semester min. 50% of the performance. Repair facility is on the last lecture. Written exam.

Required and recommended readings:

Retter Gyula: Fuzzy, neurális, genetikus, kaotikus rendszerek. Bevezetés a „lágy számítás” módszereibe. Akadémiai Kiadó, 2006 Kóczy T. L., Tikk D.: Fuzzy rendszerek. Typotex Kiadó, 2000 Borgulya István: Neurális hálózatok és fuzzy rendszerek, Dialóg Campus Kiadó, 1998 Borgulya István: Evolúciós algoritmusok, Dialóg Campus Kiadó, 2004 Álmos A., Györi S., Horváth G., Várkonyiné Kóczy A.: Genetikus algoritmusok, Typotex Kiadó, 2002 MATLAB The Language of Technical Computing

Piglerné Lakner Rozália, Starkné Werner Ágnes: Ágens technológiák, Typotex, 2011, elektronikus jegyzet:
<http://www.tankonyvtar.hu/>