Name: **Intelligent Systems**		*NEPTUN-code:* *NIXIR0EBNE*	*Number of periods/week:* full-time: 1 lec + 0 sem + 2 lab
Credit: 3 *Requirement:* mid-term mark		*Prerequisite:* -	
Responsible: András MOLNÁR, Ph.D.	*Position:* associate professor, habil.	*Faculty and Institute name:* John von Neumann Faculty of Informatics Institute of Applied Informatics	
Way of assessment: - mid-term exam			
Competences			
Course description:			
The course aim is to teach the general concepts related to mobile robots: sensors, path planning, orientation. The applications of mobile robots will be demonstrated: military, disaster management, space exploration, civil applications. The students will learn the ground aerial path planning and guidance: terrestrial path planning algorithms, known and unknown terrain, rule-based, neural network based and self-learning algorithms, wavefront propagation. Basic concepts of genetic algorithms: gene, population, selection, mutation. Programming of a simple genetic algorithm to solve problems. The optimization of genetic algorithms. Neural networks basic concepts: Perceptron, feedforward networks, learning and error correction. A simple neural networks can be solved. General description of the satellite positioning systems: GPS, Glonass.			
Literature			
Attila Álmos, Sándor Győri: Genetic Algorithms, Typotex Kft. Elektronikus Kiadó, 2002 (in Hungarian) Cawsey, Alison: The Essence of Artificial Intelligence, Panem Kft., 2002 (in Hungarian)			