Course Unit Descriptor

Study Programme: Computing And Control Engineering
Course Unit Title: Modeling and optimization by learning from data
Course Unit Code: E2515
Name of Lecturer(s): Kulić Filip, Jeličić Zoran, Bugarski Vladimir
Type and Level of Studies: master
Course Status (compulsory/elective): elective
Semester (winter/ summer): winter
Language of instruction: english
Mode of course unit delivery (face-to-face/distance learning): face-to-face
Number of ECTS Allocated: 6
Prerequisites: none
Course Aims:. Students learn about systems of automatic control based on computer intelligence methods.
Learning Outcomes: The acquired knowledge can be used in solving concrete engineering problems.
Syllabus. Application of artificial neural networks in the identification, diagnosis, prediction and control. Fuzzy systems in systems engineering. Neuro fuzzy systems: combining fuzzy logic and neural networks in control. Genetic algorithms in systems engineering. Design of classic and neuro fuzzy regulators using genetic algorithms. Support vector machines and their application in identification and control of systems.
Required Reading: Relevant literature in English, tbd

Weekly Contact Hours: 2	**Lectures: 3**	**Practical work: 0**

Teaching Methods: Lectures. Computational and computer practice. Consultations. The exam is written and oral. Passing the written part is the prerequisite for the oral part. The final grade is formed on the bases of achievements at the colloquium, homework assignments and the quality of the written and oral part of the exam.
Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Attendance			
Computer exercises			
Tests (4x)			