UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION			
Study Program	Mechanical Engineering		
Study Module (if applicable)	-		
Course Title	Neuro and Fuzzy Modelling and Control		
Level of Study	☒Bachelor	☐ Master's	☐ Doctoral
Type of Course	☐ Obligatory	☒ Elective	
Semester	☐ Autumn	☒ Spring	
Year of Study	IV		
Number of ECTS Allocated	5		
Name of Lecturer/Lecturers	Žarko Ćojbašić		
Teaching Mode	☒ Lectures	☐ Group tutorials	☐ Individual tutorials
	☒ Laboratory work	☒ Project work	☒ Seminar
	☐ Distance learning	☐ Blended learning	☐ Other

Purpose and Overview (max. 5 sentences)

Introduce students to the basics of computational intelligence and especially of fuzzy logic, neural networks and genetic algorithms, as well as their application in solving complex modelling and control problems that cannot be efficiently treated by conventional techniques. Provide students with basic skills in application of computational intelligence in modelling and control design for intelligent mechatronic systems, with special emphasis on efficient usage of computer tools applicable for such tasks.

Syllabus (brief outline and summary of topics, max. 10 sentences)

Theoretical lectures * Combining numerical and qualitative information in engineering systems – intelligent approach based on usage of computational intelligence. * Artificial neural networks. Fuzzy systems. * Other significant techniques of computational intelligence. Genetic algorithms. * Non linear modelling techniques in mechatronics. * Intelligent control systems in mechatronics.
Practice * Realization of neuro-fuzzy and hybrid models and control systems by application of specialized Matlab and LabView modules. * Practical realization of models and control systems by using experimental data obtained during lab work on other subjects or from laboratory system models. * Simulation and physical implementation of intelligent control of laboratory mechatronic systems.

Language of Instruction

☒Serbian (complete course) ☒ English (complete course) ☐ Other _____ (complete course)

☐Serbian with English mentoring ☐Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
Activity During Lectures	10	Written Examination	25
Practical Teaching	10	Oral Examination	25
Teaching Colloquia	30	Overall Sum	100
*Final examination mark is formed in accordance with the Institutional documents			