UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION			
Study Program	Mechanical Engineering		
Study Module (if applicable)	-		
Course Title	Intelligent Control Systems		
Level of Study	☐Bachelor	☐ Master's	☒ Doctoral
Type of Course	☐ Obligatory	☒ Elective	
Semester	☒ Autumn	☐ Spring	
Year of Study	II		
Number of ECTS Allocated	10		
Name of Lecturer/Lecturers	Žarko Ćojbašić		
Teaching Mode	☒ Lectures ☒ Laboratory work ☐ Distance learning	☐ Group tutorials ☒ Project work ☐ Blended learning	☐ Individual tutorials ☒ Seminar ☐ Other

Purpose and Overview (max. 5 sentences)

Course aim is to introduce students to various techniques of analysis and design of contemporary intelligent control systems for diverse classes of mechatronic objects. Provide students with ability to define and design neuro, adaptive fuzzy and hybrid neuro-fuzzy and neuro-fuzzy-genetic control systems.

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

Theory classes * Intelligent systems and their characteristics. Soft computing and computational intelligence. Integration of various soft computing techniques in hybrid systems. * Artificial neural networks. Fuzzy systems. Genetic algorithms. * Intelligence in mechatronics – control task. Intelligent control systems in mechatronics. * Fuzzy control systems. Neuro controllers. Adaptive fuzzy controllers. Hybrid neuro-fuzzy controllers. Classification of hybrid neuro-fuzzy controllers. * Neuro-fuzzy-genetic control systems.
Guided independent research * Preparation of students for self-directed research of references, journals and Internet contents in the field of intelligent control systems in mechatronics. Laboratory research.

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	**0**	**Written Examination (2 term papers)**	**50**
Practical Teaching	**0**	**Oral Examination**	**50**
Teaching Colloquia	**0**	**Overall Sum**	**100**
***Final examination mark is formed in accordance with the Institutional documents**			