UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

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

Purpose and Overview (max. 5 sentences)

The aim of the course is to broaden knowledge in transportation systems from the prospective of intelligent control, which is essential to students for further scientific research. Improving the general level of education in the field of transportation systems. The fundamental outcome is student's capability to conduct research, as well as to analyze and develop intelligent control for transportation systems.

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

Theory classes

The concept of intelligent systems and their characteristics. Soft computing and artificial intelligence. Integration of various techniques of soft computing in hybrid systems. Artificial neural networks. Fuzzy systems. Metaheuristic optimization algorithms. Expert systems. Artificial Intelligence in transportation and logistics - control task. Sensors and actuators in the field of transportation systems. Application of robots in transportation. Automation based on PLCs. Communication between controllers. Human machine interface (HMI). Intelligent transport systems in cities and towns (automatic tracking of transportation and traffic, information for passengers, cargo handling and vehicle fleet management, etc.). Systems for tracking of intelligent transport vehicles movements. GPS/GPRS technologies. Smart cards and RFID technologies. Intelligent and Automated guided vehicles (AGV).

Guided independent research

Preparation of students for independent research into the written literature, scientific journals, and web portals within the field of intelligent transportation and logistics systems control. Laboratory and experimental 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 (research term paper)**	**50**
Practical Teaching	**0**	**Oral Examination**	**50**
Teaching Colloquia	**0**	**Overall Sum**	**100**
***Final examination mark is formed in accordance with the Institutional documents**			