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| **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** |