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| **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Mechanical Engineering |
| **GENERAL INFORMATION** |
| Study Program | **Mechatronics and Control** |
| Study Module (if applicable) | - |
| Course Title | Robotics |
| Level of Study | ☐Bachelor | ☒ Master’s | ☐ Doctoral |
| Type of Course | ☒ Obligatory | ☐ Elective |
| Semester | ☐ Autumn | ☒ Spring |
| Year of Study | I |
| Number of ECTS Allocated | 6 |
| Name of Lecturer/Lecturers | Vlastimir Nikolić, Žarko Ćojbašić, Danijela Ristić-Durrant |
| 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 various techniques of analysis and design of control systems for various classes of mechatronic objects. To provide that students become familiar with models of mechatronic systems as control objects as well as to become familiar with basics of analysis and design of control systems in mechatronics and also insight into basic control equipment.*  |
| **Syllabus (brief outline and summary of topics, max. 10 sentences)** |
| **Theoretical lectures \*** Control in mechatronic systems, design and specific features. Examples of control in mechatronic systems. \* Digital control systems, structure and components. Elements of theory of discrete systems. \* Process of signal sampling and reconstruction. Transformation methods in discrete systems analysis. \* Discrete transfer function. State space concept in modelling discrete control systems. \* Stability of discrete control systems. Estimation of system behaviour quality during transient state and steady state. \* Digital and computer control. Example of control in mechatronics: control in contemporary vehicles.**Practice \*** Practical analysis and design of contemporary digital control for typical technical system classes. Use of computer tools in analysis and control of digital control 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** |