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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** |  |
| **GENERAL INFORMATION** |
| Study program  | Mechanical Engineering |
| Study Module (if applicable) |  |
| Course title | D.2.2-I.2.23 INFORMATION TECHNOLOGY in Mechatronics |
| 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 | Aca D. Micic |
| Teaching mode | ☑Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introduction to basic programming techniques of the controller circuits using higher programming languages, principles of design of computer networks and logical system to the successful management of mechatronic processes. Mastering software tool for monitoring and managing processes, capacity for designing logical control systems and process control. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **The concept of digital logic design, and combinational logic:*** Introduction. A digital representation of information. Numerous systems. Represent numbers. Arithmetic. Converting number one database to another. Complement. Coding. Boolean algebra. Boolean functions. Switching circuits. Implementation. Time diagrams. Reliability and failures;

 **System Connection:*** Introduction. TIA / EIA Serial Interface Standards. The IEEE-488 General Purpose Interface Bus (GPIB).Simple microscope. Magnifying glass;

**Communications and computer networks:*** Introduction. Computer network. Techniques of resource allocation.

**Design of logical systems:*** Introduction to digital logic. Semiconductor devices. Logic circuits. Technology of logic circuits. Example applications in mechatronic systems.

**Synchronous and asynchronous sequential systems:*** Introduction. Synthesis of synchronous sequential systems. Synthesis of asynchronous sequential systems. Design of the controller circuits.
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| **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** |  | **Written examination** |  |
| **Practical teaching** |  | **Oral examination** | **100** |
| **Teaching colloquia** |  | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |