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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  |  Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronics |
| Course title | Real Time Systems Design |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 2 |
| Number of ECTS allocated | 10 |
| Name of lecturer/lecturers | Jevtić S. Milun |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introduction with the modern Real-Time systems. Become familiar with the efficient and reliable methods of designing Real-Time systems for different purposes. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Classification of modern electronic systems based on microcomputers. Principles of systematic design of RTS (Real Time System). Hardware / software "co-design". Object-oriented approaches to designing microcomputing system. Reliability and deterministic behavior of RTS. Operating systems and micro-core RT systems. RT core of dedicated systems based on modern 32-bit microcontrollers on the ARM architecture. Modeling system for real-time operation. UML for the design, analysis and implementation of the RTS. Structural and dynamic aspects of modeling RTS UML. Designing concurrent and distributed RT applications UML. Development Tools and equipment design. Debugging techniques and on-line testing RTS. RTS and based on an industrial PC. Network protocols for distributed RTS is. Highly reliable and fully predictable behavior of the RTS and the management and control of industrial processes. |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **50** | **Oral examination** | **50** |
| **Teaching colloquia** |  | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |