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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Electronic Engineerinig | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | Electrical Engineering and Computing | | |
| Study Module (if applicable) | | | | Electronics | | |
| Course title | | | | Data Acquisition and Processing Systems | | |
| Level of study | | | | ☐ Bachelor ☐ Master’s X Doctoral | | |
| Type of course | | | | ☐ Obligatory X Elective | | |
| Semester | | | | ☐ Autumn ☐ Spring | | |
| Year of study | | | | II | | |
| Number of ECTS allocated | | | | 10 | | |
| Name of lecturer/lecturers | | | | Petrović D. Branislav | | |
| Teaching mode | | | | X Lectures ☐Group tutorials ☐ Individual tutorials  X Laboratory work X Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| Mastery of knowledge and experience in the design and implementation of complex systems for acquisition and processing data. Such systems should have the reliability, security, and have the ability to connect to one of the communication network.  Data acquisition system implemented in the industrial applications | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Basic definitions and configurations. Classification of signals, sensors and transducers. Signal conditioning. Noise and interference methods to minimize the impact. PC in the acquisition, operating systems. High speed data transfer (DMA, "pulled" method, interrupt method). Expansion Slots (PCI, PCI Express, PXI bus). Acquisition boards, resolution, dynamic range, speed measurement. Digital inputs and outputs. Counting board.  Serial communication (RS 232, RS 485, USB). Protocols. Loggers and controllers, methods of operation, hardware, software, firmware. IEEE 488 standard, features, configuration. Ethernet and LAN systems, field bus in the acquisition.  Physical layer, datalink layer, application layer.  USB - Structure, physical, datalink, and application layers. | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| X Serbian (complete course) X 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** | | | | | | |