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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | **Faculty of Electronic Engineering** |
| **GENERAL INFORMATION** |
| Study program  | Control Systems |
| Study Module (if applicable) | Computer Control Systems and Measurement Techniques |
| Course title | Computer Systems for Measurements and Control |
| Level of study |  Bachelor ☐**X** Master’s ☐ Doctoral |
| Type of course | Obligatory **X** Elective |
| Semester  |  **X** Autumn ☐Spring |
| Year of study  | **First** |
| Number of ECTS allocated | **4** |
| Name of lecturer/lecturers | Živanoviæ B. Dragan |
| Teaching mode | **X** Lectures **X** Group tutorials **X**  Individual tutorials**X** Laboratory work ☐ Project work ☐ Seminar**X** Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The aim of the subject is to allow students to introduce with hardware and software of systems for measurement and control, to learn all techniques of connection of single components into complex system, considering the influence of the applied techniques on the measurement accuracy. Student will be abble to decide whether to use virtual instruments, centralized or distributedmeasurement systems to solve project task, which components should be used and to recognizepotential problems which could occur in practice. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Measurement of non-electrical quantities. Connection of sensors, measurement transducers and actuators with computer. Hardware structure of computer-based measurement systems. Standard interface systems for measurement techniques. SCADA systems. Distributed measurement systems. Components of distributed systems. Inteligent measurement transducers. Hardware and software techniques of compensation of measurement results. Inteligent sensors in cars. Electrical isolation in measurement systems. Protocols of industrial networks. Protocols for inteligent sensors in cars. Wireless sensor networks. Virtual instrumentation and virtual laboratories. Examples of practical implementation of computer-based measurement systems. Real-time work. Software design. Internet connection. Calibration of computer-based measurement devices and systems. Automatic test systems. Measurement systems for car testing. |
| **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 60** | **Final exam**  | **Points 40** |
| **Activity during lectures** | **10** | **Written examination**  | **20** |
| **Practical teaching** | **20** | **Oral examination**  | **20** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |