|  |
| --- |
|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronics - Embedded Systems |
| Course title | Data Acquisition Systems |
| Level of study | X Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | X Obligatory Elective |
| Semester  | X Autumn Spring |
| Year of study  | IV |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Petrović D. Branislav |
| Teaching mode | X Lectures ☐Group tutorials ☐ Individual tutorialsX Laboratory work X Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introduce students to the basic methods of acquisition of electrical and non-electrical quantities. Introduction to the basic components of the sensor processing problems and their signal. Understanding the basic principles of integration of the complete data acquisition system. Basic characteristics of sensors and data processing methods. Realization of data acquisition system. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| DAS definition and basic structures. Data domens and measurement principles. Types of DAS. Sensors – analog signal transducers. Calibration and linearization techniques. Analog multiplexers, signal conditioning, operational amplifiers. Analog to digital conversion, digital to analog conversion – types and fundamental characteristics. User interfaces – keyboards and displays. Microcontrollers in DAS. Examples of DAS, DAS in vehicles. Temperature measurement a) Thermocouple b) NTC resistor, measuring differential pressure, force measurement, analog and digital filtering, wireless data acquisition system for temperature. |
| **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** | **10** | **Written examination** | **20** |
| **Practical teaching** | **30** | **Oral examination** | **20** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |