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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) | Control Systems |
| Course title | Variable Structure Systems |
| Level of study | ☐Bachelor ☐ Master’s ⊠ Doctoral |
| Type of course | ☐ Obligatory ⊠ Elective |
| Semester  | ⊠ Autumn ⊠ Spring |
| Year of study  | Second |
| Number of ECTS allocated | 10 |
| Name of lecturer/lecturers | Antić S. Dragan, Mitić B. Darko |
| Teaching mode |  ⊠Lectures ☐Group tutorials ☐ Individual tutorials ☐Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ⊠ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Gaining knowledge of the variable structure control systems with sliding mode and their application in the control of continuous- and discrete-time systems. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| The concept of variable structure systems and sliding mode. Continuous- and discrete-time sliding modes. Quasi sliding modes. Characteristics of systems with sliding mode control. Invariance conditions. Problems of mathematical description of sliding mode. Filippov's method. Equivalent control method. Stability of the systems with the sliding mode control. Systems with scalar and vector control. Methods for realization of sliding mode control in multivariable systems. Chattering reduction. Problems of realization of systems with sliding mode control. Sliding mode control in systems with finite zeros. Realization of sliding mode control based only on measuring of plant inputs and outputs. Examples of practical implementation of sliding mode control. |
| **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** | **0** | **Written examination** | **0** |
| **Practical teaching** | **0** | **Oral examination** | **50** |
| **Project** | **50** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |