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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Electronic Engeeniring |
| **GENERAL INFORMATION** |
| Study program  | **Electrical Engineering and Computing** |
| Study Module (if applicable) | Telecommunications |
| Course title | Automatics |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | IV |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Boban Veselić |
| 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 to the basic idea of automatic control, components of control systems, systems modeling, as well as control systems analysis and design. Systematic approach to modeling of automatic control systems. Structural block diagram algebra. Characteristic transfer functions derivations. System analysis in time, frequency and complex domain. Controller design and tuning. Practical implementations of automatic control systems in industry. Introduction to MATLAB software tools.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Overview of the automatic control systems (ACSs) development. ACSs classification. Modeling of linear analog and digital ACSs. ACS structure. Structural block diagrams of control systems, Linear systems analysis in time, frequency and complex domain. System stability. Stability analysis methods in frequency and complex domains. System performance rating and design criteria. Continuous-time ACSs synthesis. Digital control systems analysis. Discrete-time transfer functions. Digital control systems stability. Digital control systems design. Computer simulation of ACSs. Industrial controllers. PID controller design. Examples of modern ACSs architectures and implementations.** |
| **LANGUAGE OF INSTRUCTION** |
| [ ] Serbian (complete course) [ ]  English (complete course) [ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)[x] 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** | **10** |
| **Practical teaching** | **20** | **Oral examination** | **20** |
| **Teaching colloquia** | **4o** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |