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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) | Automatic Control |
| Course title | Robust Control |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | I |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Boban Veselić |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Introduction to the problems of model uncertainties and modeling errors, robust stability principles as well as control systems design methods for providing robust performances. Provide the students with theoretical and practical knowledge necessary for robust control systems design depending on present model uncertainties and given system specifications. Train the students to use computer support in analysis and synthesis of robust control systems.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Model uncertainties of linear dynamical systems and their representation in time and frequency domain. H2 and H∞ spaces and norms. Specifications of performances and limitations. Control plant model reduction. Model uncertainties and robustness. Robust stability and performance analysis. Linear fractional transformation. Structured singular value. Controller parameterization. Algebraic Riccati equation. H2 and H∞ control. Controller order reduction. H∞ loop-shaping.** |
| **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** | **20** | **Written examination** | **20** |
| **Practical teaching** | **20** | **Oral examination** | **20** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |