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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 | Modeling of Dynamical Systems |
| Level of study | ☐Bachelor ☐ Master’s ⊠ Doctoral |
| Type of course | ☐ Obligatory ⊠ Elective |
| Semester  | ⊠ Autumn ⊠ Spring |
| Year of study  | First |
| Number of ECTS allocated | 10 |
| Name of lecturer/lecturers | Antić S. Dragan, Milojković T. Marko |
| 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 mathematical models of dynamical systems, modern modeling techniques and methods for design of these models. Knowledge about practical ways for obtaining models of mechanical, electrical, electromechanical, hydraulic, thermal, chemical and technological processes using qualitative modeling, artificial neural networks and genetic algorithms. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Models of dynamic systems. Theory of similarity. Methods of mathematical modeling. Object-oriented system modeling. Graphical modeling techniques. Obtaining mathematical models of mechanical, hydraulic, thermal, chemical and industrial processes. Modeling industrial systems. Modeling ecological systems. Qualitative modeling. Artificial neural networks. Validation and verification techniques. |
| **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** |