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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | The Faculty of Electrical Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electronics and Microsystems |
| Study Module (if applicable) | Electronics |
| Course title | Modelling the components of electronic circuits and systems |
| Level of study | ☐Bachelor ☒ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory ☒ Elective |
| Semester  |  ☒ Autumn ☐Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Damnjanović S. Milunka |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials ☒Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Adopting and systematizing knowledge about modelling elements of electronic circuits and systems from the level of the semiconductor components to the macro models on the system level. Acquiring competences for creation of physical models of electronic circuits elements, as well as for the models based on the black box. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction to modelling. Properties of the electronic circuits models. Methods for modelling. Characterization of models and modelling procedures. Black box models. Physical models. The hierarchy of models. Models for small signals. Local models. Global models. The accuracy of the model. Models of pnpn semiconductor structures. Models of JFET and MOSFET. Models of components with regenerative properties. Macro models of analog cells. Macro models of digital cells. Generating of macro models. Noise modelling. Modelling of non-electrical quantities. Modelling of solar cells and panels. Within this course practice is planned based on the use of Spice simulator. |
| **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** |  |
| **Practical teaching** | **60** | **Oral examination** | **40** |
| **Teaching colloquia** |  | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |