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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Electronic Engineering** |
| **GENERAL INFORMATION** |
| Study program  | Electronics and Microsystems |
| Study Module (if applicable) | Electronic Devices and Microsystems |
| Course title | Technologies of organic semiconductor materials and devices |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  | [ ]  Autumn [x] Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Paunović V. Vesna/Pantić S. Dragan |
| Teaching mode |  [x] Lectures [x] Group tutorials [x]  Individual tutorials [x] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The student becomes familiar with the properties and technologies of organic semiconductor materials. Also, acquires knowledge about the components that are based on organic semiconductors, and is capable of independently using commercial Silvaco software tools for simulation of technological process and the electrical characteristics of the components. The basic knowledge of organic semiconductors, components and technologies that are based on these materials . |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction. Organic semiconductors. Transport carriers in the crystal, polycrystalline and amorphous organic semiconductors. Luminescence in organic materials, films and crystals. Spontaneous and stimulated emission. Energy transfer and excitation. Photo conduction, photo-induced charge transfer. Photovoltaic components, solar cells and photodiodes. Organic LEDs, the basic structure and charge injection. Organic LED displays, active and passive matrix displays. Organic transistors. Circuits and systems based on organic components. Photo excitation organic lasers. |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [x]  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** | **25** |
| **Practical teaching** | **20** | **Oral examination** | **25** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |