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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Electronic Engineering** |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Nanotechnologies and Microsystems |
| Course title | Optoelectronics |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  | [x]  Autumn [ ] Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 10 |
| Name of lecturer/lecturers | Paunović V. Vesna |
| 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 light properties, light sources and detectors, and optoelectronic circuits and systems. Increased knowledge and practical mastery of optoelectronic techniques and technologies of optoelectronic components and systems |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Optoelectronics as experimental sciences, i.e. scientific cycles of theory and experiment, and its multidisciplinary in the viewpoint literature and internet technology, as the basis of study of light and matter. Optics, electrodynamics, electronics, quantum and statistical physics of radiation. Source of light and components of telecommunication devices and systems. Interaction of radiation and atomic systems. Laser oscillation. Semiconductor lasers. Some telecommunication laser systems. Information displays, cathode ray, LC, TFT and perspective of development of display technology. Discrete and integrated optoelectronic components and devices. Integrated and quantum optoelectronics. Optical, electro optical and quantum-electrodynamical effects in the optical circuits and devices. Propagation of electromagnetic waves in anisotropic crystals. Integrated optical systems for propagation, modulation, oscillation and switch of light in optical dielectric materials. Optoelectronic materials and technologies. Limits and perspective of development of optoelectronics (Perspective themes for doctoral dissertation). |
| **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** |  | **Written examination** |  |
| **Practical teaching** | **50** | **Oral examination** | **50** |
| **Teaching colloquia** |  | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |