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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Sciences and Mathematics |
| **GENERAL INFORMATION** |
| Study program  | **Physics** |
| Study Module (if applicable) |  |
| Course title | Atomic and molecular processes in plasmas |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [ ] Spring |
| Year of study  |  |
| Number of ECTS allocated | 12 |
| Name of lecturer/lecturers | Saša R. Gocić |
| Teaching mode |  [ ] Lectures [ ] Group tutorials [x]  Individual tutorials [ ] Laboratory work [x]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Based on acquired knowledge on atomic and molecular processes, the students will be able to understand the most important mechanisms of occurrence and maintenance of the different types of electrical discharges in gases at low and atmospheric pressure.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **The physic theory of binary collisions. The electron collisions with atoms and molecules. The ions and neutral collisions. The particles – surfaces collisions. The electron and ions swarms. The transport processes, diffusion, the heat transfer, mobility of charged particles in electric field, ambipolar diffusion. The surface processes, secondary and thermal electron emission. The radiative processes in weakly ionized gases, atomic and molecular spectra, spontaneous and stimulated emission.**  |
| **LANGUAGE OF INSTRUCTION** |
| [ ] Serbian (complete course) [x]  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** | **10** | **Written examination** | **20** |
| **Practical teaching** |  | **Oral examination** | **30** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |