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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** |  |
| **GENERAL INFORMATION** |
| Study program  | **Physics** |
| Study Module (if applicable) | General physics |
| Course title | Physics of ionized gases |
| Level of study | ☐Bachelor ☒ Master’s ☐ Doctoral |
| Type of course | ☒ Obligatory☐ Elective |
| Semester  | ☐ Autumn ☒Spring |
| Year of study  | First |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Vidosav Lj. Marković/Marjan Stankov |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☒Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The main goal of this course is to introduce students with the physical processes in ionized gases, gas discharges, experimental methods and applications of ionized gases. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Ionized gases in nature and in laboratory. Elastic and inelastic collisions. The most important processes of formation and decay of charged particles and emission processes on surfaces. Transport processes: drift, mobility, diffusion and thermal conductivity. Non self-sustained discharge: electrical breakdown of gases, Paschen law. Townsend and streamer breakdown. Self-sustained discharge: glow discharge, corona, arc discharge,spark, atmospheric, vhf discharges. Basic features of plasma: oscillations, waves and radiation of plasma. Experimental methods of physics of ionized gases: current and voltage measurements, plasma probe, methods based on statistics, refractive methods, interferometry, spectroscopic diagnostics, laser absorption and inducedfluorescence, microwave diagnostics, mass spectrometry. Applications of ionized gases: the gas light sources, gas lasers, gas tubes, material processing (plasma metallurgy), interaction with surfaces and applications in microelectronics and nanotechnology. |
| **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** | **5** | **Written examination** | **/** |
| **Practical teaching** | **20** | **Oral examination** | **60** |
| **Teaching colloquia** | **15** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |