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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 | Experimental methods in physics |
| Level of study | ☒Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | ☒ Obligatory☐ Elective |
| Semester  | ☒ Autumn ☐Spring |
| Year of study  | Third |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Vidosav Marković |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☒Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *After completion of the course and successfully passing the exam, the student will be familiar with the basics of experimental methods in physics, underlying physical principles and the most important areas of their application.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Introduction and concept of spectroscopy. Electromagnetic radiation sources. Electromagnetic radiation detectors. Classification and characterization of the spectroscopic instruments (instruments with prism and grating, interferometer and modulation instruments). Atomic spectroscopy (emission and absorption of line radiation, transition probabilities and lifetime of excited states, selection rules, broadening of spectral lines, atom in external electric and magnetic field, isotope shift and spin hyperfine structure, quantum numbers and atomic structure, periodic system of elements; emission, absorption and fluorescent spectroscopy). Molecular spectroscopy (electronic, vibrational and rotational energy of diatomic molecules, continual and diffuse spectra, polyatomic molecules, UV molecular and visible spectroscopy, infrared spectroscopy, Raman spectroscopy).** |
| **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** |