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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) | General physics |
| Course title | Modern methods in experimental physics |
| Level of study | ☐Bachelor ☒ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory ☒ Elective |
| Semester  |  ☐ Autumn ☒Spring |
| Year of study  | Second |
| Number of ECTS allocated | 6 |
| 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)** |
| *The purpose of this course is to introduce the modern methods in experimental physics to the students.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Modern spectroscopy methods (laser spectroscopy, optoacustic and optogalvanic spectroscopy, LIF - laser induced fluorescence, Doppler-free spectroscopy, saturation spectroscopy, TALIF, induced Raman spectroscopy, CARS, NMR/EPR spectroscopy, electron spectrometry, XPS, AES, mass spectrometry). Characterization and application of lasers (laser cooling, atom and ion trapping, excitation lifetime measurement). Physics of vacuum. Physics of low temperatures. Computers in physical experiments (discrete electronic components, integrated circuits, signal processing noise, filters, converters, interface) and their application.** |
| **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** |