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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Sciences and Mathematics | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Physics/Mathematics** | | |
| Study Module (if applicable) | | | | General Physics, Physics-Informatics/Mathematical Models in Physics | | |
| Course title | | | | Symmetries in Physics | | |
| Level of study | | | | ☐Bachelor ☒ Master’s ☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory ☒ Elective | | |
| Semester | | | | ☐ Autumn ☒Spring | | |
| Year of study | | | | 2 | | |
| Number of ECTS allocated | | | | 6 | | |
| Name of lecturer/lecturers | | | | Dragoljub D. Dimitrijevic | | |
| 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 familiarize the students with the properties of the groups, symmetries in molecular, quantum and statistical physics, linear algebra. After completing this course, students should have knowledge of properties of groups, symmetries and their applications in physics.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **Groups and their properties. Group representations. Discrete groups. Lie groups and Lie algebras. Generators of groups. Kasimir operators. Euclidean, Lorentz and Poincare groups. SU(2) group and isospin. SU(3) group and application to particle physics. Supersymmetry.** | | | | | | |
| **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** | | | **30** |
| **Practical teaching** | **/** | | **Oral examination** | | | **40** |
| **Teaching colloquia** | **25** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |