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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Science and Mathematics |
| **GENERAL INFORMATION** |
| **Study program**  | **Physics** |
| Study Module (if applicable) |  |
| Course title | Solid State Physics |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [x]  Autumn [x] Spring |
| Year of study  | 2 |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Zoran Pavlović |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [ ]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The course aims to introduce students to the concepts of Solid State Physics.Acquired knowledge is necessary for further scientific and professional work, research work and application of solid state physics in modern physics microelectronic components and systems. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| 1. The crystal structure.2. Fundamentals of group theory and simetije crystals.3. Diffraction in crystals4. The imperfections (Defects) in the crystal.5. The lattice dynamics.6. The thermal properties of the crystal lattice of the solid state. 7. The electrons in solid state.8. Transport of electrons in solid state.9. The theory of the energy zone.10. Metals.11. Semiconductors.12. Dielectric.13. Magnetism and superconductors.14. Optics effects in the crystal.15. Kinetic phenomena in metals and semiconductors.16. Thermoelectric and galvanomagnetic effects in solid state.17. Nuclear magnetic resonance of solids.18. The technology for obtaining the crystals.19. Application of crystals in microelectronics and electronics systems, scientific and technical progress. |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [ ]  English (complete course) [ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)[x] 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** | **30** |
| **Practical teaching** | **20** | **Oral examination** | **30** |
| **Teaching colloquia** | **10** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |