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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) |  Applied Physics |
| Course title | Physics of Materials |
| 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 | Ljiljana Kostić |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☒Laboratory work ☐ Project work ☒ Seminar☐Distance learning ☐ Blended learning ☒ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The course provides a comprehensive introduction to the concepts of Physics of Materials. It explains the structure and properties of materials, which determine their use and technological application. Acquired knowledge is necessary for further professional and scientific work, research work and understanding of the possibilities of materials application in technology and industry. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction to the Physics of Materials. **Structure of condensed matter**: Crystalline materials, Polycrystalline materials, Non-crystalline materials (Amorphous, Polymers, Liquid crystals). **Classes of materials**: Metals and metal alloys, Ceramics, Polymers, Composite materials, Semiconductors, including new and advanced materials - Nanomaterials and Biomaterials. **Physical properties of materials**: mechanical, electrical, thermal, optical and magnetic properties. Synthesis and processing of materials. **Materials testing**: Destructive and nondestructive testing. **Materials 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** | **25** | **Oral examination** | **50** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |