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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 | Fundaments of computing |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 3 |
| Number of ECTS allocated |  |
| Name of lecturer/lecturers | dr Marko Petković |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *The purpose of this course is introduction to the software packages for symbolical and numerical computations, text and image processing, as well as introduction to computer hardware and software* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Fundaments of computer hardware and software:** History of computing, structure of the modern computer, CPU, motherboard, memory subsystem, external devices, system and application software, multimedia, computer networks and internet.**Charts processing software (Origin):** Data processing, different types of charts, chart customization, data fitting, charts exporting. **Text processing software (LaTeX):** Introduction to LaTeX, document structure, mathematical formulae, insertion of images and tables, references, custom commands.**Software for symbolical and numerical computation (Wolfram Mathematica):** Arithmetical operations, elementary functions, expressions manipulating, equations solving, computation of the limit, derivative and integral, list processing, visualizations using Mathematica, numerical solving of algebraic and differential equations, fundaments of the mathematical modelling in physics using Mathematica as a tool. |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [x]  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** |  | **Written examination** |  |
| **Practical teaching** |  | **Oral examination** | **50** |
| **Teaching colloquia** | **50 (25+25)** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |