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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Sciences and Mathematics |
| **GENERAL INFORMATION** |
| Study program  | Computer Science |
| Study Module (if applicable) | - |
| Course title | Implementation and Application of Automata |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | second |
| Number of ECTS allocated | 12 |
| Name of lecturer/lecturers | Aleksandar Stamenković |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [ ]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introducing the implementation and practical application of automata in the verification software, processing, compression and coding of data, and other areas |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Discrete event systems (discrete event systems), the theory of competition, labeled transition systems, process algebra, model-checking, verification software. Automata in: text processing, pattern matching, text compression, image processing, image compression, speech processing, processing of natural language. Text processors. Formal languages and automata in biology, molecular genetics and in cryptography. Automata and symbolic dynamics, sofic shifts and shifts of finite type, entropy coding, error correction, synchronization and decoding. |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **10** | **Written examination** | **20** |
| **Practical teaching** | **-** | **Oral examination** | **50** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |