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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | **Computing and Informatics** |
| Study Module (if applicable) | Computer Engineering |
| Course title | Soft Computing |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Aleksandar Lj. Milosavljević |
| Teaching mode |  [x] Lectures [x] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Insight into the area of soft computing and basic research directions. Show students the basic principles and machine learning algorithms, the elements of fuzzy logic, artificial neural networks, evolutionary computation, and apply them to solve real problems.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Machine learning approaches: inductive learning, analytical learning. Selection of examples to gain experience, selection and presentation of the target function. Learning as search and algorithms for potential hypotheses space search. Generating a decision tree. Case-based learning. Fuzzy logic. Artificial neural networks. Artificial neural network architecture, activation functions, learning algorithms, feed-forward neural networks, recurrent neural networks. Fuzzy neural networks. Evolutionary computing. Evolutionary programming, evolution strategies, genetic programming, genetic algorithms and optimization, genetic algorithm operators, integration of genetic algorithms and neural networks.** |
| **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** |  |
| **Practical teaching** | **40** | **Oral examination** | **30** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |