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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronics |
| Course title | Artificial Intelligence in Engineering |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | 4 |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Dragiša Milovanović, Miona Andrejević Stošović |
| 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)** |
| Acquiring competence in applying of artificial neural networks in design, testing and diagnosis of electronic circuits and systems. Students are expected to learn fundamental algorithms for neural networks training, as well as handling software for neural networks utilization. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Artificial intelligence concept. Artificial intelligence based on production rules. Artificial neural networks. Natural nervous system. Neuron. Synapse. Neuron model. Artificial neural networks architectures. Training. Perceptron. Possibilities and algorithms for perceptron training. Multi-layer neural networks. Reccurent neural networks. Types, training and application problems. Procedures of dynamic training. Genetic algorithms. Artificial neural networks realization. VLSI implementation of analog neural networks. Digital realization. Boltzmann machine. Neuro-fuzzy networks and their application. |
| **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** | **20** | **Written examination** | **0** |
| **Practical teaching** | **40** | **Oral examination** | **40** |
| **Teaching colloquia** | **0** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |