|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | |  | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Computer Science** | | |
| Study Module (if applicable) | | | |  | | |
| Course title | | | | Computational Intelligence | | |
| Level of study | | | | Bachelor  Master’s  Doctoral | | |
| Type of course | | | | Obligatory  Elective | | |
| Semester | | | | Autumn Spring | | |
| Year of study | | | | 2 | | |
| Number of ECTS allocated | | | | 8 | | |
| Name of lecturer/lecturers | | | | Branimir Todorovic, Aleksandar Trokicic | | |
| Teaching mode | | | | Lectures Group tutorials  Individual tutorials  Laboratory work  Project work  Seminar  Distance learning  Blended learning  Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Introduction to basic models and algorithms of machine learning and computational intelligence* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **Estimators and their properties (least squares, maximum likelihood and Bayesian estimation). Bias variance dilemma. Linear deterministic classification: perceptron and support vector machine. Probabilistic generative and discriminative classifiers (binary and multinomial logistic regression). Artificial neural networks: feedforward and recurrent. Hidden Markov models. Sequential Bayesian estimation. Extended Kalman filter as neural networks training algorithm. Independent and principal component analysis. Clustering. Reinforcement learning.** | | | | | | |
| **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** |  | | **Written examination** | | | **25** |
| **Practical teaching** | **20** | | **Oral examination** | | | **30** |
| **Teaching colloquia** | **25** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |