**Table 5.2.** Specification of subject

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| **Study program:** Advanced Data Analytics in Business | | | | |
| **Name of the subject: Introduction to Machine Learning in Business** | | | | |
| **Teacher(s):** Marko Milojković, Miroslav Milovanović, Ronald Hochreiter | | | | |
| **Status of the subject:** Core subject | | | | |
| **Number of ECTS credits:** **8** | | | | |
| **Conditions:** Programming for business applications 1 | | | | |
| **Subject goal**  Modern business heavily depends on extracting commercial value from the vast amount of available data. This course aims to provide students an introduction to machine learning techniques that are the core of modern data analytics. | | | | |
| **Outcome of the subject**  Students will be able to:   * recognize an adequate machine learning method for performing business activities; * on the basis of the data, they can be predict and evaluate the movement of economic phenomena; * conduct independent research using various machine learning methods, focusing on economic applications. | | | | |
| **Subject content**  *Theory*  The course will cover leading machine learning methods, emphasizing the challenges and opportunities of integrating these methods in empirical economics. The various topics are illustrated through applications, reading empirical articles, and doing applied work. Students will be trained in the following specific topics: big data analytics, preparing data for modeling, basics of machine learning, and various machine learning methods (regression methods, nearest neighbors classifiers, decision trees, random forest, neural networks).  *Practical learning*  All computing in class will be conducted in Python. Students will be trained in case studies in the domain of economics: predicting economic growth, estimating the price of real estate, predicting trends in the stock market, loan default prediction. | | | | |
| **Literature**   1. Atin Basuchoudhary, James T. Bang, Tinni Sen (2017) Machine-learning Techniques in Economics -New Tools for Predicting Economic Growth, Springer, ISBN 978-3-319-69013-1 2. Matthew F. Dixon, Igor Halperin, Paul Bilokon (2020) Machine Learning in Finance - From Theory to Practice, Springer, ISBN 978-3-030-41067-4 3. Sebastian Raschka, Vahid Mirjalili (2017), Python Machine Learning - Second Edition: Machine Learning and Deep Learning with Python, scikit-learn, and TensorFlow, Packt, ISBN 978-1787125933 | | | | |
| **Number of active teaching classes** | **Theoretical teaching:** 45 | | **Practical teaching:** 30 | |
| **Method of carrying out the teaching**  Presentation, dialogue, graphics, programming language demonstration, indvidual work. | | | | |
| **Evaluation of knowledge (maximum number of points 100)** | | | | |
| **Pre-exam obligations** | Points | **Exam results** | | Points |
| Activity during lectures | 10 | Written exam | | 25 |
| Practical teaching | 10 | Oral exam | | 25 |
| Colloquium | 0 | Project presentation | | 0 |
| Paper work - case study | 30 | **Total** | | **100** |