**Table 5.2.** Course specification

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| **Study program :** Advanced Data Analytics in Business | | | | |
| **Course title:** Machine Learning | | | | |
| **Teachers:** Kupusinac Aleksandar, Brcanov Dejan, Ronald Hohrajter | | | | |
| **Status of the course:** Obligatory | | | | |
| **Number of ECTS:** 7 | | | | |
| **Condition:** No | | | | |
| **Goal of the course**  The aim of the course is that student builds an abstract thought within the area of machine learning and on the basis to master the possibilities of its application in data science. The student should apply the acquired knowledge from machine learning methods (linear regression, artificial neural networks, decision trees, associative rules, support vector machine, genetic algorithm) in solving real problems. | | | | |
| **Learning outcome**  Acquisition of modern knowledge and skills in machine learning. The student is able to study and solve real problems in data science by applying the acquired knowledge from the application of machine learning methods. | | | | |
| **Content of the course**  *Theoretical part*   1. The concept of machine learning 2. Modeling based on machine learning 3. Linear regression 4. Artificial neural networks 5. Decision trees 6. Associative rules 7. Support vector machine 8. Genetic algorithm 9. Application of the method of machine learning in the data science 10. Big data analysis 11. Predictions 12. Evaluations 13. Application of the method of machine learning in the prediction and evaluation 14. Classification 15. Application of the method of machine learning in the classification   *Practical part*  Selected methods and techniques of machine learning. Selected problems that require the implementation of methods and techniques of machine learning for their solving. Application of machine learning in different fields. Analysis and development of concrete examples. | | | | |
| **Literature**   1. Ethem Alpaydin: Introduction to Machine Learning, MIT Press, 2004 2. M. Magdon-Ismail, Y. AbuMostafa: Learning from Data, AMLBook, 2012 3. S. Shalev-Schwartz, S. BenDavid: Understanding Machine Learning: From Theory to Algorithms, Cambridge university press, 2014 4. Goodfellow, I., Bengio, Y., Courville, A.: Deep Learning, MIT Press, Cambridge, 2017   Bishop, C.M.: Pattern Recognition and Machine Learning, Springer, New York, 2006 | | | | |
| **Number of hours of active teaching** | **Theoretical teaching:** 2 | | **Practical teaching:** 3 | |
| **Teaching methods**  Lectures. Computer practice. Consultations. The student is obliged to independently do the project and write a seminar paper. | | | | |
| **Assessment (maximum number of points 100)** | | | | |
| **Pre-exam obligations** | Points | **Final exam** | | Points |
| Project | 50 | Theoretical exam | | 30 |
| Seminar paper | 20 |  | |  |
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