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| **WSB University** |
| **Field of Study: Management** |
| **Module /item: Analytical processing of business data** |
| **Training profile: General** |
| **Education cycle: II cycle studies** |
| **Number of hours per semester** | 1 | 2 |
| I | II | III | IV |
| Fixed studies (w/l/lab/pr/e) |  |  |  | **16C** |
| Part-time studies (w/l/lab/pr/e) |  |  |  |  |
| **Lecturer** | Karol Jędrasiak, PhD Eng. |
| **FORM OF CLASSES** | Classes |
| **OBJECTIVES OF THE SUBJECT MATTER** | * Introduction to data processing and mining
* Familiarize yourself with exploratory queries
* Introduction to the knowledge discovery process
* Introduction to data mining methods
* Familiarize yourself with the tools used to explore data
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| **Material effect** | **Reference to effects** | **Description of learning outcomes** | **How to verify the effect** |
| Direction | Area | Knowledge |
| AnProBD\_K01 | Z2\_W12Z2\_W20 | S1A\_W06 | Knowledge of data mining | Completion of the oral submission of the draft dossier |
| AnProBD\_K02 | Z2\_W12Z2\_W20 | S1A\_W06 | Knowledge of the knowledge discovery process | Completion of the oral submission of the draft dossier |
| AnProBD\_K03 | Z2\_W12Z2\_W20 | S1A\_W06 | Knowledge of data mining methods | Completion of the oral submission of the draft dossier |
| Abilities |
| AnProBD\_A04 | Z2A\_U04 | S2A\_U01S2A\_U02S2A\_U03S2A\_U04 | Ability to develop exploration queries | Evaluation of the prepared project, oral credit |
| AnProBD\_A05 | Z2A\_U04 | S2A\_U01S2A\_U02S2A\_U03S2A\_U04 | Ability to integrate, select and clean data | Evaluation of the prepared project, oral credit |
| AnProBD\_A06 | Z2A\_U04 | S2A\_U01S2A\_U02S2A\_U03S2A\_U04 | Ability to consolidate and transform data | Evaluation of the prepared project, oral credit |
| AnProBD\_A07 | Z2A\_U04 | S2A\_U01S2A\_U02S2A\_U03S2A\_U04 | Can use data mining methods | Evaluation of the prepared project, oral credit |
| AnProBD\_A08 | Z2A\_U04 | S2A\_U01S2A\_U02S2A\_U03S2A\_U04 | He can document his work | Evaluation of the prepared project, oral credit |
| Social competence |
| AnProBD\_S09 | Z2A\_U02Z2A\_U05 | S2A\_U02S2A\_U05 | The student is aware of the importance of group work roles, assignment of tasks and role of communication in the project team | Understanding the roles and tasks assigned to the team and the degree of completion is part of the documentation |
| **Student effort (1h dyd =45 minutes)\*\*** |
| **Stationary**participation in lectures =participation in exercises = 16hpreparation for exercises = 10hpreparation for the lecture = exam preparation =implementation of project tasks = 12he-learning =pass/exam = 2hothers (specify what) =**Time: 40h****Number of ECTS points: 1,5****including practical classes:1,5** | **Part-time**participation in lectures =participation in exercises =preparation for exercises =preparation for the lecture =exam preparation =implementation of project tasks =e-learning =pass/exam =others (specify what) =**Time:****Number of ECTS points:****including practical classes:** |
| **DESCRIPTION OF THE SUBJECT MATTER** | The aim of the classes is to familiarize students with practical issues of data processing and exploration. As part of the classes, students will be familiar with the difference between data and information. Students will learn about data mining and then learn about the next components of the knowledge discovery process. As part of the classes, students will learn about good practices and goals of using data mining techniques, also using machine learning and artificial intelligence methods. Students will be familiar with common methods of data mining, such as classification, regression, grouping, sequence discovery, discovering characteristics, discovering association. Students will practice issues related to normalizing database patterns and optimizing queries. The final step will be to apply the acquired knowledge in practice in order to carry out the project. |
| **Prerequisites** | Subject requires the ability to think logically, acquire knowledge, willingness to solve problems |
| **ITEM CONTENT** | * Direct content:
* Introduction to data processing and mining.
* The process of discovering knowledge.
* Data integration.
* Data selection.
* Clearing the data.
* Data consolidation and transformation.
* Classification.
* Grouping.
* Discovering characteristics.
* Discovering association.
* Time wave analysis.
* Use of machine learning and artificial intelligence methods.
* Implementation of the project
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| **Literature****Mandatory** | J.N. Kurtessis et al., Perceived Organizational Support: A Meta-Analytic Evaluation of Organizational Support Theory. Journal of Management 2015, vol. 43, 6. (Sage Journals).Complete Business Statistics / Amir D. Aczel, Jayavel Sounderpandian, Palanisamy Saravanan, Rohit Joshi. - Mc Graw Hill.* Allan Foster, Business Information Survey. Business Information Review 2008, vol. 25, 1. (Sage Journals)
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| **Literature****Supplementary** | Learning Systems, P. Cichosz, WNT, 2000.Discovering association: Algorithms and data structures, T. Morzy, OWN, 2004.StatSoft: Statistics and Data Mining Methods in Research, Statistics and Data Mining in Practice, Modern Data Collection, Sharing and Analysis Tools: STATISTICA Data Miner and Sybase IQ.M. Szeliga, Data science and Machine Learning, PWN (2017).G. Trzpiot (ed), Statistics and Data Science, EU Publishing House in Katowice, (2017).R. Schutt, C. O'Neil, Data Survey. Action Line Report, Helion (2014). |
| **TEACHING METHODS** | **In direct**form:Slide show, traditional array method, presentation of programs and their launch in a computer environment |
| **SCIENTIFIC AIDS** | * Room with computer station
* Whiteboard classes
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| **METHOD OF CREDIT** | Presentation in the project group with documentation |
| **FORM AND CONDITIONS OF CREDIT** | The condition for obtaining credit is to obtain a positive assessment from all forms of credit provided for in the curriculum, taking into account the quantitative evaluation criteria set out in the Framework System of Student Assessments at the WSB Academy. |