# GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

| Subject name and code | Data Warehousing and Data Mining, PG_00047850 | | | | | |
|---|---|---|---|---|---|---|
| Field of study | Biomedical Engineering | | | | | |
| Date of commencement of studies | October 2023 | | Academic year of realisation of subject | | 2025/2026 | |
| Education level | first-cycle studies | | Subject group | | Optional subject group Subject group related to scientific research in the field of study | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | |
| Year of study | 3 | | Language of instruction | | Polish | |
| Semester of study | 6 | | ECTS credits | | 3.0 | |
| Learning profile | general academic profile | | Assessment form | | assessment | |
| Conducting unit | Department of Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | prof. dr hab. inż. Jacek Rumiński | | | |
| | Teachers | | prof. dr hab. inż. Jacek Rumiński | | | |

| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|---|
| | Number of study hours | 15.0 | 0.0 | 0.0 | 15.0 | 0.0 | 30 |
| | E-learning hours included: 0.0 | | | | | | |

| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|---|
| | Number of study hours | 30 | 3.0 | 42.0 | 75 |

| Subject objectives | The aim of the course is to introduce students with knowledge and skills in the basics of data warehouse and data mining. |
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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
|---|---|---|---|
| | [K6_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices | Students have knowledge about: - Modelling of a multidimensional data warehouse - The conversion of the source data and transfer them to the data warehouse - Multidimensional data analysis and formulation of proposals, - Preparing data for data mining, - Selection method, algorithm and data mining software, - Visualization of the knowledge obtained from data mining, - Quantitative evaluation of obtained rules. | [SW1] Assessment of factual knowledge |
| | [K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study | Student skills gained: - Model a multidimensional data warehouse - The conversion of the source data and transfer them to the data warehouse - Preparing data for data mining, - Selection method, algorithm and data mining software, | [SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task |

| Subject contents | 1. Database vs. data warehouse - basic terms 2. Data warehouses - data models 3. Data warehouses - data analysis 4. OLAP - OnLine Analytical Processing 5. Examples of systems and solutions 6. Databases of XML documents 7. Transformation of structures and data 8. Data retrieval 9. Basis of data mining - applications and methods 10. Data preprocessing 11. Association rules 12. Decision trees and data classification 13. Knowledge formulation, filtration and visualization 14. Examples of systems and applications 15.Deep learning |
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| Prerequisites and co-requisites | No requirements |

| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|---|
| | Written exam | 50.0% | 40.0% |
| | Project | 51.0% | 60.0% |

| Recommended reading | Basic literature | Daniel T. Larose, Odkrywanie wiedzy z danych Wprowadzenie do eksploracji danych, PWN, 2006 Jiawei Han, Micheline Kamber, Data Mining: Concepts and Techniques, Morgan-Kaufmann, 2006 Materiały do przedmiotu opracowane w formie edukacji na odległość, dostęp: http://uno.biomed.gda.pl Matthias Jarke, Maurizio Lenzerini, Yannis Vassiliou, Panos Vassiliadis, Hurtownie danych. Podstawy organizacji i funkcjonowania, WAiP, 2003. Skrypt z materiałami do przedmiotu Hurtownie i eksploracja danych W3C, Rekomendacje XML i HTML, www.w3.org |
|---|---|---|
| | Supplementary literature | No requirements |
| | eResources addresses | Adresy na platformie eNauczanie: |

| Example issues/ example questions/ tasks being completed | |
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| Work placement | Not applicable |