GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Transfer, collection and data security, PG_00044137		
Field of study	Mathematics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	second-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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Zaawansowanych Zastosowań Matematyki -> Instytut Matematyki Stosowanej -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bartosz Reichel	
	Teachers	dr inż. Bartosz Reichel dr hab. Paweł Pilarczyk	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	15.0	0.0	60

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	60	5.0	35.0	100

Subject objectives

The aim of the course is to familiarize with the formats and tools enabling secure data collection, analysis and transmission.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_U11	- Student can choose the way of collecting data. - Student can design a database structure. - Student can collect data. - Student is able to analyze the collected data.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
K7_K01	- Student uses technical documentation. - Student uses online resources in English.	[SK5] Assessment of ability to solve problems that arise in practice
K7_W11	- The student can take care of the security of collected data. - Student is able to securely send collected data.	[SW1] Assessment of factual knowledge
K7_K02	The student is able to carry out the design task consisting of: - determining the requirements to be implemented by the data collection system, - collecting data in various formats, - presenting the results of own data analysis. The student is able to cooperate in the implementation of the project.	[SK4] Assessment of communication skills, including language correctness [SK1] Assessment of group work skills

Subject contents	SQLite library - cooperation with Python and R. Relational data modeling and graph data modeling. Graph data in practice. Basics of the Neo4j language. Graph database creation and analysis. Data security on the computer. Internet security. Security of relational databases. Cybersecurity. GDPR. Electronic data interchange. Data transfer between different operating systems.
Prerequisites and co-requisites	Completing the database subject and programming.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	45.0%	34.0%
Lecture	45.0%	33.0%
Laboratory	45.0%	33.0%

Recommended reading

Basic literature	Marek Gągolewski, Maciej Bartoszuk, Anna Cena. Przetwarzanie i analiza danych w języku Python. Wydawnictwo Naukowe PWN, 2016.400 ss. ISBN: 978-83-01-18940-2 Denise Gosnell, Matthias Broecheler. Dane grafowe w praktyce. Jak technologie grafowe ułatwiają rozwiązywanie złożonych problemów. Helion 2021. ISBN: 978-83-283-7460-7 Estelle Scifo. Hands-On Graph Analytics with Neo4j: Perform graph processing and visualization techniques using connected data across your. Packt Publishing, 2020. ISBN: 1839212616
Supplementary literature	Mark Needham, Amy E. Hodler, Graph Algorithms. O'Reilly Media, Inc., 2019. ISBN: 9781492047681
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Differences between relational and graph databases. Create and analyze a graph database. How to keep your data safe on the Internet.
Work placement	Not applicable