GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Knowledge Discovery and Recommendation Systems, PG_00054191
Field of study	Informatics

Date of commencement of studies	February 2024	Academic year of realisation of subject	2024/2025
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	Department of Software Engineering -> Faculty of Electronics, Telecommunications and Informatics

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksandra Karpus
	Teachers	dr inż. Aleksandra Karpus

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	12.0	28.0	100

Subject objectives	The aim of the course is to acquire knowledge and skills in the field of Knowledge Discovery and Recommender Systems as well as metrics and methods for the verification and validation of algorithms.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W05] Knows and understands, to an increased extent, methods of process and function support, specific to the field of study.	The student understands the role of data analysis for detection of anomalies and fake news. The student knows different recommendation algorithms.	[SW1] Assessment of factual knowledge
	[K7_W42] Knows and understands, to an increased extent, the principles and trends in the analysis and design of local and distributed IT systems and the basics of computer modeling and computerization of complex cognitive and decision-making processes.	The student has knowledge of broadly understood data analysis including time series analysis, text analysis and social network analysis. The student understands the role of known methods in application of anomaly and fake news detection as well as in the process of items recommendation.	[SW1] Assessment of factual knowledge
	[K7_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions	The student is able to plan a research experiment related to Knowledge Dicsovery and Recommender Systems. Student can select a data and parameters as well as model evaluation measures, interpret the results as well as introduce changes to the experiment or the developed model.	[SU1] Assessment of task fulfilment
	[K7_U06] can analyse the operation of components, circuits and systems related to the field of study; measure their parameters; examine technical specifications; interpret obtained results and draw conclusions	The student can find an error in a model or an algorithm, select or correct parameters of a model as well as introduce changes to an existing model. The student can select metrics and measures in order to gain knowledge about an algorithm as well as interpret obtained results.	[SU1] Assessment of task fulfilment

Subject contents	• Basics of data mining • Time series analysis • Anomaly detection • Basics of text analysis • Types and identification of fake news • Definition and types of recommendation systems • User modeling • Networks and recommendations in networks • Evaluation of recommendation systems • Application of deep learning methods in recommendation systems		
Prerequisites and co-requisites	• Knowledge of the basics of linear algebra, mathematical analysis and the theory of probability. • Knowledge of the basics of Software Engineering. • Programming skills in Python. • Programming skills in R. • Ability to use scientific literature.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture	51.0%	40.0%
	Laboratory	51.0%	30.0%
	Project	51.0%	30.0%
Recommended reading	Basic literature	1. Francesco Ricci, Lior Rokach, Bracha Shapira, and Paul B. Kantor. 2010. *Recommender Systems Handbook* (1st. ed.). Springer-Verlag, Berlin, Heidelberg 2. Dietmar Jannach, Markus Zanker, Alexander Felfernig, and Gerhard Friedrich. 2010. *Recommender Systems: An Introduction* (1st. ed.). Cambridge University Press, USA. 3. John P. Scott. 2017. *Social Network Analysis*. 4th Edition. Sage Publications Ltd.	
	Supplementary literature	Charu C. Aggarwal. 2016. *Recommender Systems: The Textbook* (1st. ed.). Springer Publishing Company, Incorporated.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		