



## Subject card

Subject name and code	Intelligent Information Retrieval, PG_00054370						
Field of study	Informatics, Biomedical Engineering						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group		Optional subject group Specialty 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		3.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department Of Computer Architecture -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Julian Szymański				
	Teachers		dr hab. inż. Julian Szymański				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	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	45		6.0		24.0	75
Subject objectives	introduction to						
	natural language processing						
	information retrieval						
	machine learning in text categorization						
	technikues						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	student knows text representation methods	[SW1] Assessment of factual knowledge
	[K7_K02] is ready to provide critical evaluation of received content and to acknowledge the importance of knowledge in solving cognitive and practical problems	student knows data reduction technics	[SK3] Assessment of ability to organize work
	[K7_U43] can apply information technologies in market economy and information society conditions as well as algorithmize and computerize cognitive and decision-making processes in other areas of knowledge	student knows how search engine works	[SU1] Assessment of task fulfilment
	[K7_U08] while identifying and formulating engineering tasks specifications and solving these tasks, can: - apply analytical, simulation and experimental methods, - notice their systemic and non-technical aspects, - make a preliminary economic assessment of suggested solutions and engineering work	student knows how to built text correction methods	[SU1] Assessment of task fulfilment
Subject contents	1. Pass conditions 2. Informatic and cognitive science 3. Intelligence, service, information - terms definitions 4. Text representation, VSM 5. Text classification - Naive bayes 6. Text classification - SVM 7. Dimension reduction 8. PCA Algorithm 9. SVD Algorithm and application to LSI 10. Web search engines architectire 11. Google and PageRank algorithm 12. HITS algorithm 13. Text clusterization 14. Natural language processing tools 15. Lexical sources: Wordnet 16. Knowledge representation methods 17. Description logic as ontology language 18. Final exam		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	50.0%
	Written exam	50.0%	50.0%
Recommended reading	Basic literature	Mieczysław Alojzy Kłopotek, "Inteligentne wyszukiwarki internetowe" Akademicka Oficyna Wydawnicza EXIT, Warszawa 2001 Ricardo Baeza-Yates Berthier Ribeiro-Neto Modern Information Retrieval	
	Supplementary literature	FABRIZIO SEBASTIANI Machine Learning in Automated Text Categorization. S. Brin, L. Page The anatomy of a large-scale hypertextual Web search engine	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	search engine architecture  multidimensional scalling  text klassification with SVM		
Work placement	Not applicable		

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