

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Databases, PG_00064005							
Field of study	Data Engineering							
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027			
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study			
						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	2		Language of instruction		English			
Semester of study	3		ECTS credits		4.0			
Learning profile	general academic profile		Assessment form		exam			
Conducting unit	Department Of Software Engineering -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej							
Name and surname	Subject supervisor		prof. dr hab. inż. Krzysztof Goczyła					
of lecturer (lecturers)	Teachers		prof. dr hab. inż. Krzysztof Goczyła					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0		0.0	45
	E-learning hours inclu	uded: 0.0						
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	I didactic Participation in consultation hours		Self-study S		SUM	
	Number of study hours	45		8.0		47.0		100
Subject objectives	The aim of the course is introduction the student to functions of a database management system, to the rules of relational database desing and to construction of SQL statements.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	[K6_W06] classifies the acquired information, assessing its usefulness in solving the formulated problems		The student is able to gather information, classify it appropriately and create a system model in accordance with the ERM methodology.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U04] formulates logical solutions to complex or unstructured problems		The student is able to analyze a real complex system, define constraints and assumptions in the context of creating a database.			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
[K6_U07] uses information technologies to improve the acquisition, analysis and processing of data in business applications		The student is able to complete a task involving the creation of a relational database and the formulation of queries of varying degrees of complexity.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject			

Subject contents	1. Architecture of database systems						
	2. The functions of database management system						
	3. Entity sets, attributes of entities, keys of entities, relationships						
	4. Entity Relationship Diagram (ERD) basics concepts						
	5. Creating entity relationship diagrams						
	6. Relational database - definitions, integrity constraints						
	7. From an entity relationship diagram to a relational database schema						
	8. Fundamentals of relational algebra						
	9. Review of SQL language, SQL standards						
	10. Creating tables and inserting data						
	11. Simple queries with expressions						
	12. Queries using aggregate functions and grouping						
	13. Queries with joins						
	14. Nested queries						
	15. Queries for update, delete and mass insert						
	16. Views, operations on views						
	17. Normalization of relational databases						
	18. Identification, authentication and authorization of users						
Prerequisites and co-requisites	No requirements						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	exam	50.0%	50.0%				
	project	50.0%	25.0%				
	lab	50.0%	25.0%				
Recommended reading	Basic literature P. Beynon-Davies. "Database Systems". WNT 2000.						
	C.J.Date. "Introduction to database systems". Wiley, 2000.						
		M.Gruber. "SQL", 2nd Edition. Helion 2000					
		aterials. Gdańsk.					
	Supplementary literature	None					

	eResources addresses	Adresy na platformie eNauczanie:			
Example issues/ example questions/ tasks being completed	1. Construct an entity relationship model for an example real-life case				
	2. Construct and create a relational database				
	3. Formulate a query to a relational database				
	4. Specify the operators of relational algebra				
	5. Give reasons for violation of the second and third normal form				
	6. Normalize a sample database				
Work placement	Not applicable				

Document generated electronically. Does not require a seal or signature.