



Subject card

Subject name and code	Databases, PG_00064005						
Field of study	Data Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2025/2026	
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						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Krzysztof Goczyla				
	Teachers		prof. dr hab. inż. Krzysztof Goczyla				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	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		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_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.			[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment	
	[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.			[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools	
	[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	

Subject contents	<ol style="list-style-type: none"> <li>1. Architecture of database systems</li> <li>2. The functions of database management system</li> <li>3. Entity sets, attributes of entities, keys of entities, relationships</li> <li>4. Entity Relationship Diagram (ERD) basics concepts</li> <li>5. Creating entity relationship diagrams</li> <li>6. Relational database - definitions, integrity constraints</li> <li>7. From an entity relationship diagram to a relational database schema</li> <li>8. Fundamentals of relational algebra</li> <li>9. Review of SQL language, SQL standards</li> <li>10. Creating tables and inserting data</li> <li>11. Simple queries with expressions</li> <li>12. Queries using aggregate functions and grouping</li> <li>13. Queries with joins</li> <li>14. Nested queries</li> <li>15. Queries for update, delete and mass insert</li> <li>16. Views, operations on views</li> <li>17. Normalization of relational databases</li> <li>18. Identification, authentication and authorization of users</li> </ol>														
Prerequisites and co-requisites	No requirements														
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 1592 796 1619">Subject passing criteria</th> <th data-bbox="801 1592 1141 1619">Passing threshold</th> <th data-bbox="1145 1592 1479 1619">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1626 796 1653">lab</td> <td data-bbox="801 1626 1141 1653">50.0%</td> <td data-bbox="1145 1626 1479 1653">25.0%</td> </tr> <tr> <td data-bbox="456 1659 796 1686">project</td> <td data-bbox="801 1659 1141 1686">50.0%</td> <td data-bbox="1145 1659 1479 1686">25.0%</td> </tr> <tr> <td data-bbox="456 1693 796 1720">exam</td> <td data-bbox="801 1693 1141 1720">50.0%</td> <td data-bbox="1145 1693 1479 1720">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	lab	50.0%	25.0%	project	50.0%	25.0%	exam	50.0%	50.0%
Subject passing criteria	Passing threshold	Percentage of the final grade													
lab	50.0%	25.0%													
project	50.0%	25.0%													
exam	50.0%	50.0%													
Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p>	<p>P. Beynon-Davies. "Database Systems". WNT 2000.</p> <p>C.J.Date. "Introduction to database systems". Wiley, 2000.</p> <p>M.Gruber. "SQL", 2nd Edition. Helion 2000</p> <p>K.Goczyla. "Databases". Lecture materials. Gdańsk.</p> <p>None</p>													

	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Construct an entity relationship model for an example real-life case</li> <li>2. Construct and create a relational database</li> <li>3. Formulate a query to a relational database</li> <li>4. Specify the operators of relational algebra</li> <li>5. Give reasons for violation of the second and third normal form</li> <li>6. Normalize a sample database</li> </ol>	
Work placement	Not applicable	

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