



## Subject card

Subject name and code	Databases, PG_00031221						
Field of study	Mathematics						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
Education level	first-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	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Zakład Analizy Nieliniowej -> Instytut Matematyki Stosowanej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		mgr inż. Tomasz Gzella				
	Teachers		mgr inż. Tomasz Gzella				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	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	Knowledge of SQL. Ability of designing non complicated data bases.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U10		The student uses basic SQL statements and data types in relational databases. Is aware of the requirements for database systems. He independently designs and implements simple database systems. Work environment: ORACLE, SAS.		[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	K6_W08		The student uses basic SQL statements and data types in relational databases. Uses SQL language mechanisms that allow to increase the level of data integrity stored in the database.		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
Subject contents	Lectures and laboratories: Introduction to data bases and relational data model. SQL language: querying and manipulating data. Row and aggregate functions. Joining tables. Subqueries. Data Manipulating Language (DML). Data Definition Language (DDL). Ensuring data integrity. Introduction to modelling and designing computers systems. Normalization of logical schema, functional dependency, normal forms. Using transactions in data base system. Designing and implementing of simple data base systems. PL/SQL language. Cursors, exceptions and triggers.						
Prerequisites and co-requisites	Knowledge of Introduction to logic and set theory.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Tests		45.0%		20.0%		
	Laboratory		45.0%		80.0%		

Recommended reading	Basic literature	<p>Michael J. Hernandez, Bazy danych dla zwykłych śmiertelników, Mikom, Warszawa, 2004. Rick Greenwald, Robert Stackowiak, Jonathan Stern, Oracle Database 11g. To, co najważniejsze, Wydawnictwo Naukowe PWN, Warszawa 2009.</p> <p>Michael McLaughlin, Oracle Database 11g. Programowanie w języku PL/SQL, Helion, Gliwice</p>
	Supplementary literature	<p>Jason Price, Oracle Database 12c i SQL. Programowanie, Helion, Gliwice 2015</p> <p>Michael McLaughlin, Oracle Database 12c. Programowanie w języku PL/SQL, Helion, Gliwice 2015</p>
	eResources addresses	<p>Podstawowe  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30900">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30900</a> -            Adresy na platformie eNauczanie:            Bazy Danych sem. 4 (2023/24) - Moodle ID: 30900  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30900">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30900</a></p>
Example issues/ example questions/ tasks being completed	Make project and implementation of table for storing the data of students.	
Work placement	Not applicable	