



Subject card

Subject name and code	Database management systems, PG_00067416						
Field of study	Data Engineering, Data Engineering						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2029/2030		
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	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Software Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Gołaszewski					
	Teachers	dr inż. Grzegorz Gołaszewski dr hab. inż. Agnieszka Landowska					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30	3.0		42.0		75
Subject objectives	Subject aims at practical knowledge and skills of database systems administration, including security, efficiency and safety management.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W06] classifies the acquired information, assessing its usefulness in solving the formulated problems	Knows architecture and mechanisms for assuring safety, security and performance in database systems			[SW1] Assessment of factual knowledge		
	[K6_U01] analyzes and evaluates complex processes in the context of their improvement possibilities, using various methods, including analytical and simulation	Can determine the current and target state of a database system			[SU4] Assessment of ability to use methods and tools		
	[K6_U07] uses information technologies to improve the acquisition, analysis and processing of data in business applications	Can optimize architecture and behaviour of database systems from the perspective of selected quality attributes			[SU1] Assessment of task fulfilment		
Subject contents	Course content – lecture						
	1. Introduction to database systems management. DBA tasks. 2. Database system architecture an example of Oracle DBMS 3. Management of logical and physical database structures. 4. Database system security: privileges, roles and users 5. Database system security: creating archives and restoring the database 6. Database system performance: tracking 7. Database system performance: database tuning, capacity planning 8. Database system performance: query optimization mechanisms 9. Database system performance: clusters and partitions. 10. Failure models of database systems and restore processes. Bug tracking and problem solving. 11. Automation of DBA tasks						
	Course content – laboratory						
	1. Initial database configuration (installation) 2. Database system security: privileges, roles and users, creating archives and restoring the database 3. Automation of DBA tasks 4. Database system performance: query optimization mechanisms, instance tuning						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Practical exercise	50.0%	50.0%
	Midterm colloquium	50.0%	50.0%
Recommended reading	Basic literature	Lecture: <ol style="list-style-type: none"> Christian Antognini, "Troubleshooting Oracle Performance", Apress 2008 Elke Phelps, Paul Jackson, "Oracle Applications DBA Field Guide", Apress 2006 Ron Ben Natan, "HOWTO Secure and Audit Oracle 10g and 11g", Taylor & Francis Group 2009 Sam R. Alapati, "Expert Oracle Database 11g Administration", Apress 2009 Laboratory: <ol style="list-style-type: none"> Oracle Database 2 Day DBA, 19c. Oracle Database Database Administrators Guide, 19c Oracle Database Database Installation Guide, 19c for Linux Oracle Database Database Client Installation Guide, 19c for Linux Oracle Database Database 2 Day + Performance Tuning Guide, 19c Oracle Database Database Performance Tuning Guide, 19c Oracle Database SQL Language Reference, 19c 	
	Supplementary literature	No requirements	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	Design a security policy in accordance with the given requirements and implement it. Describe the storage structures used in the Oracle system and explain their mutual relations. Why is an inconsistent copy of data is called an online copy? How can you restore consistent data from an inconsistent backup?	
Practical activities within the subject	Not applicable		

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