GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Management of Database Systems, PG_00047963
Field of study	Informatics

Date of commencement of studies	October 2022	Academic year of realisation of subject	2025/2026
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

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Gołaszewski
	Teachers	dr inż. Grzegorz Gołaszewski

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	3.0	27.0	75

Subject objectives	Subject aims at practical knowledge and skills of database systems administration, including security, efficiency and integrity management.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	The student is able to assess the state and performance of the database and instance.	[SU1] Assessment of task fulfilment
	[K6_W43] Knows and understands, to an advanced extent, standards and methods of IT systems administration, monitoring of processes occurring in them and immunising them to undesirable phenomena and activities	The student knows the issues of administering database systems, including: - rules of user and permissions administration, - rules for database and instance management, - rules for tracking and optimizing database performance, - rules for creating data copies and data recovery.	[SW1] Assessment of factual knowledge
	[K6_U42] can apply tools and methods of designing, optimization, monitoring, management, increasing reliability and protection from safety hazards in local and distributed information systems and applications	The student is able to perform tasks in the field of administering database systems, including: - demonstrates the ability to install the Oracle database system, - demonstrates database and instance management skills, - demonstrates the ability to manage users, - demonstrates the ability to track and optimize database performance - demonstrates the ability to restore a database after a failure.	[SU1] Assessment of task fulfilment
	[K6_U06] can analyse the operation of components, circuits and systems related to the field of study, measure their parameters and examine technical specifications	The student demonstrates the ability to administer database systems, in particular: - to analyze and audit the security policy of the database system, - to measure of query performance, - to monitor database instance performance.	[SU1] Assessment of task fulfilment
	[K6_W41] Knows and understands, to an advanced extent, the operation and evaluation criteria of data processing, storage and transfer methods, including computational algorithms, artificial intelligence and data mining	The student knows the issues of administering database systems, including: - rules for managing access to data (security policy), - principles of securing against data loss (rules for data backup and recovery).	[SW1] Assessment of factual knowledge

Subject contents	
	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 6. Database system security: replication. 7. Database system performance: tracking 8. Database system performance: database tuning, capacity planning 9. Database system performance: query optimization mechanisms 10. Database system performance: clusters 11. Failure models of database systems and restore processes. Bug tracking and problem solving. 12. Automation of DBA tasks

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Midterm colloquium	50.0%	50.0%
	Practical exercise	50.0%	50.0%

Recommended reading	Basic literature	Lecture: 1. Christian Antognini, "Troubleshooting Oracle Performance", Apress 2008 2. Elke Phelps, Paul Jackson, "Oracle Applications DBA Field Guide", Apress 2006 3. Ron Ben Natan, "HOWTO Secure and Audit Oracle 10g and 11g", Taylor & Francis Group 2009 4. Sam R. Alapati, "Expert Oracle Database 11g Administration", Apress 2009 Laboratory: 1. Oracle Documentation Library 10g. 2 Day DBA. 2. Oracle Documentation Library 10g. Administrator"s Guide 3. Oracle Documentation Library 10g. Instalation Guide 4. Oracle Documentation Library 10g. Performance Tuning Guide 5. Oracle Documentation Library 10g. SQL Reference
	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Design a security policy in accordance with the given requirements and implement it. 2. Describe the storage structures used in the Oracle system and explain their mutual relations. 3. Why is an inconsistent copy of data is called an online copy? How can you restore consistent data from an inconsistent backup?	
Work placement	Not applicable	