



Subject card

Subject name and code	Database management systems, PG_00045381						
Field of study	Data Engineering						
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			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		dr hab. inż. Agnieszka Landowska				
	Teachers		dr hab. inż. Agnieszka Landowska				
Lesson types and methods of instruction	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		67.0	100	
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_W07] Knows the methods of information processing, storage, extraction of data stored in various models including: relational, graph and document ones	Student will: - get familiar with database administration tasks, - practice Oracle database installation skills, - practice database and instance management skills, - practice user management skills, - practice performance analysis and tuning skills, - practice database backup and recovery skills.			[SW1] Assessment of factual knowledge		
	[K6_U06] Independently solves complex engineering tasks using literature, materials and devices, prepares extensive documentation of the developed solution using appropriate description techniques.	Student will: - get familiar with database administration tasks, - practice Oracle database installation skills, - practice database and instance management skills, - practice user management skills, - practice performance analysis and tuning skills, - practice database backup and recovery skills.			[SU4] Assessment of ability to use methods and tools		
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. Distributed databases management, partitioning. 12. Distributed databases optimization. 13. Database systems migration, large data sets loading. 14. Failure models of database systems and restore processes. Bug tracking and problem solving. 15. Automation of DBA tasks						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Practical exercise	50.0%	60.0%
	Midterm colloquium	50.0%	40.0%
Recommended reading	Basic literature	<p>Wykład: 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</p> <p>Laboratorium: 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</p>	
	Supplementary literature	No requirements	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		