University of Gdańsk

Subject card

Subject name and code	Database management systems, PG_00143815		
Field of study	Informatics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
Mode of study	part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	8.0
Learning profile	academic	Assessment form	exam
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Andrzej Borzyszkowski	
	Teachers		

Lesson types

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	10.0	130.0	200

Subject objectives

The main objective of the course is to familiarize students with the principles of operation, administration and available software of selected database servers. For this purpose, very popular database servers will be used, namely Postgresql and Microsoft SQL Server. Mechanisms of these servers may be compared sometimes with those of other servers, e.g. Oracle.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFL3_W06] has a structured knowledge of various models of database systems, with particular emphasis on the relational model	has structured, theoretically and practically based knowledge of architecture, configuration and administration of various database systems has knowledge of information management, knows relational database systems	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[INFL3_U08] has the ability to select the type of database depending on the needs, create an adequate data model and use it to build database applications	is able to configure, administer and optimize the selected database server	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[INFL3_U02] can precisely formulate questions to deepen one's understanding of a given topic or find missing elements of reasoning	is able to precisely formulate questions to deepen his/her own understanding of a given topic or to find missing elements of a reasoning	[SU1] oral statement/conversation/ discussion [SU8] observation of student's independent or team work
[INFL3_W10] knows the basic principles of occupational health and safety in the IT profession	knows the basic principles of health and safety for IT professionals	[SW1] oral statement/ conversation/discussion

<table>
<tr><td>Subject contents</td><td>

- database system architecturedatabase users
- tasks of a database sever admin
- configuration of a database server on the example of Postgresql, Microsoft SQL Server, Oracle - configuration at the time of installation and later, review of configuration files
- database security issues
- database systems schema
- data definitions (attention paid to array type, table inheritance, complex types, system columns)
- transactions and locks (transaction characteristics, ANSI/ISO isolation levels, explicit and implicit locks)
- Write-Ahead Log in Postgresql and its equivalents in other database systems
- functions and triggers, psql
- accessing a database from a programming environment (example)
- backups, database replication, database optimization
- elements of an R language in data processing

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<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>exam</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>tasks</td><td>50.0%</td><td>25.0%</td></tr>
<tr><td>test</td><td>50.0%</td><td>25.0%</td></tr>
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</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Molina, Ullman, Widom : Systemy baz danych Pełny wykład, WNT 2006
2. Lis: Ćwiczenia z Postgresql 8.3, Helion 2008
3. Internetowe fora of Postgresql, MS SQL Server, Oracle, R users
4. Documentation of Postgresql, Microsoft SQL Server, Oracle</td></tr>
<tr><td>Supplementary literature</td><td>none</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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