GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Multiaccess Data Structures, PG_00047623		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Biomedical Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Adam Bujnowski	
	Teachers	dr inż. Adam Bujnowski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	15.0	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

Main goal of the subject is to familiarize students with basic databases techniques. During course student meets basic database terms - such as data, database , DBMS, data model etc. Student gets knowledge about various data models and learns how to design data structure - especially within relational database. Additionally student learns how to use selected DBMS and learns the SQL language. Student learns how to use transactions, SQL functions, triggers and learns how to use SQL within another programming language to create data interface.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study	Student uses SQL language to manage relational database Student uses SQL language inside other language Student analyses data using SQL language	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Student knows basic database terms Student knows and identifies data models Student designs realtional databases	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Principal terms - data, information, knowledge, database, DBMS, data model. Lauered model of database system, Datamodel vs data structure, Flat databases, Relatron between entites, hierarchical model, network data model, XML as a hierarchical database, Relational data model - structure of the data, Data integrity in relational databases, Graphical notations of the RDB structure, Normalisation, Designing of the relational databases, SQL - genesis, usage of the SQL, classification. Data definition language, Data types in SQL, Data manipulation language, tuple selection statements, SELECT - data retrieval, SQL - privileges , user and database management, Aggregate functions, User defined functions, triggers, transactions, additional SQL forms - comments , Backup copies of the data, Data access methods - using procedural languages. Object data model.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic skills in computing.

Programming in C/C++</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>40.0%</td></tr>
<tr><td>laboratory achievements</td><td>50.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Davies, Database systems

Matthews Stones, Databases and PostgreSQL

Rumiński, Bujnowski, Skrypt do przedmiotu Bazy Danych</td></tr>
<tr><td>Supplementary literature</td><td>Rogulski, Bazy danych dla studentów. Podstawy projektowania i języka SQL, Witkom, 2012</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.