GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Selected Problems in Algorithms and Technology, PG_00048013		
Field of study	Informatics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2026/2027
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 Algorithms and Systems Modelling -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Robert Janczewski	
	Teachers	dr hab. inż. Robert Janczewski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	15.0	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	4.0	51.0	100

Subject objectives

Acquiring the ability to build and use models of discrete optimization and design effective solutions, exact and approximate.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U10] can individually plan their own lifelong education, also by means of advanced information and communication technologies (ICT), and communicate with people from their environment, firmly justify their point of view, participate in debates, present, assess and discuss different opinions and points of view, as well as use specialist terminology related to the field of study in communication	Student learns specialist terminology related to computer science.	[SU1] Assessment of task fulfilment
[K6_W06] Knows and understands the basic processes occurring in the life cycle of devices, facilities and systems specific to a given field of study.	Student learns methods of modelling of life cycle of computer systems.	[SW1] Assessment of factual knowledge
[K6_U07] can apply methods of process and function support, specific to the field of study	Student learns methods of supporting IT processes.	[SU1] Assessment of task fulfilment

<table>
<tr><td>Subject contents</td><td>1. Design and analysis of algorithms.

2. Graph modelling and its applications.

3. Coloring problems and its applications.

4. Dominating problems and its applications.

5. Computational geometry and its applications.

6. Exact and approximation algorithms for selected graph problems.

7. Exact and approximation algorithms for selected geometry problems.

8. Grouping and clustering problems.

9. Combinatorial algorithms.

10. Algorithms for text processing and algebraic problems.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Discrete Mathematics

Design and Analysis of Algorithms</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>Egzamin</td><td>50.0%</td><td>60.0%</td></tr>
<tr><td>Presentation</td><td>0.0%</td><td>40.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Jacob E. Goodman, Joseph O"Rourke, "Discrete and Computational Geometry"

Vijay V.Vazirani "Approximation Algorithms"</td></tr>
<tr><td>Supplementary literature</td><td>No requirements</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
</table></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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