

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Introduction to algoritms, PG_00066245								
Field of study	Mathematics								
Date of commencement of studies	October 2023		Academic year of realisation of subject			2024/2025			
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	2		Language of instruction			Polish			
Semester of study	4		ECTS credits			4.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Institute of Applied Mathematics -> Faculty of Applied Physics and Mathematics								
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Jakub Maksymiuk							
	Teachers dr inż. Jakub Maksymiuk								
Lesson types and methods of instruction	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 classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	er of study 60		5.0		35.0		100	
Subject objectives	The aim of the course is to present issues related to the design and analysis of algorithms.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	K6_U10		Knows techniques for assessing the efficiency and complexity of algorithms.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment			
	K6_W08		The student is able to describe the advantages and disadvantages of selected algorithms.			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	Lecture: Algorithmic problems The concept of computational complexity Analysis of recursive algorithms, divide-and-conquer algorithms Dynamic programming Classes P and NP. NP-complete problems As part of the laboratory, students perform exercises consisting of writing programs related to selected topics discussed during the lecture.								
Prerequisites and co-requisites	Basics of C++ programming.								
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade				
			50.0%		100.0%				
Recommended reading	Basic literature		T.H. Cormen, C.E. Leiserson, R.L. Rivest, C. Stein. Wprowadzenie do algorytmów. PWN 2022.						
			S. Skiena, The Algorithm Design Manual, Springer 2020						
	S. C. Dimri, P. Malik, M. Ram, Algorithms, de Gruyter 2021					1			

	Supplementary literature	A.V. Aho, J.E. Hopcroft, J.D. Ullman. Algorytmy i struktury danych. Wydawnictwo Helion, 2003. ISBN 83-7361-177-0 J. Arndt, Matters Computational_ Ideas, Algorithms, Source Code, Springer 2011			
	eResources addresses	Adresy na platformie eNauczanie:			
Example issues/ example questions/ tasks being completed	Estimate the computational complexity of a given algorithm written in pseudocode.				
	Discuss the selected sorting algorithm and state its computational complexity.				
	Implement and test the given algorithm.				
Work placement	Not applicable				

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