University of Gdańsk

Subject card

Subject name and code	Discrete mathematics p.1, PG_00143560		
Field of study	Informatics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	undergraduate studies	Subject group	Obligatory subject group in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish polish
Semester of study	1	ECTS credits	5.0
Learning profile	academic	Assessment form	
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Andrzej Szepietowski	
	Teachers	prof. dr hab. Andrzej Szepietowski dr inż. Agnieszka Rowińska-Schwarzweller	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	0.0	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	0.0	65.0	125

Subject objectives

Familiarization with the basics of discrete mathematics in accordance with the needs of computer science.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFL3_W02] has knowledge of discrete mathematics and probabilistic methods and statistics	the student has basic knowledge of discrete mathematics (computer arithmetic, combinatorics and Boolean functions), the student has basic knowledge of probability theory	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[INFL3_U02] can precisely formulate questions to deepen one's understanding of a given topic or find missing elements of reasoning	can precisely formulate questions to deepen their understanding of a given topic	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[INFL3_U03] can design and analyze algorithms for their correctness and computational complexity using appropriate algorithmic techniques and data structures	the student is able to design simple combinatorial algorithms	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[INFL3_U01] can apply mathematical knowledge to formulate, analyze and solve problems related to computer science	the student is able to use discrete mathematics to design algorithms	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td>Set theory: operations on sets, relations and functions, equivalence relations and classes of abstraction.
Arithmetic: counting systems, representation of numbers in computers,
Combinatorics: sequences, functions, permutations, Newton's symbol, Dirichlet's drawer rule.
Probability: independence of events, Bernoulli scheme, random variables, expected values, averages, variances, Markov and Chebyshev inequalities.
Boolean functions: Boolean algebra, Boolean expressions and functions, Boolean networks.</td></tr>
<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>90.0%</td></tr>
<tr><td>tests</td><td>50.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Andrzej Szepietowski, Matematyka dyskretna, Wyd. Uniwersytetu Gdańskiego 2004.</td></tr>
<tr><td>Supplementary literature</td><td>not applicable</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>not applicable</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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