GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Optimization Algorithms, E:41055W0
Field of study	Space and Satellite Technologies

Date of commencement of studies	February 2024	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	1	ECTS credits	3.0
Learning profile		Assessment form	assessment

Conducting unit	Katedra Inteligentnych Systemów Sterowania i Wspomagania Decyzji -> Faculty of Electrical and Control Engineering
Name and surname of lecturer (lecturers)	Subject supervisor — dr inż. Tomasz Zubowicz
	Teachers

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 didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	60	0.0	0.0	60

Subject objectives	To familiarise students theoretically and practically with the optimisation algorithms.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_K03] Can analyse and implement assigned tasks while maintaining high technical standards. Is able to work and interact in a group, taking on different roles. Adheres to the principles of professional ethics and respects the diversity of views and cultures.	He can implement his tasks related to optimization problems maintaining high technical standards.	[SK2] Assessment of progress of work
	K7_U09	Student can efficiently utilize open-source libraries and tools dedicated for optimization problems to solve and illustrate the results.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
	K7_W06	Student has knowledge of the typical steps and milestones in optimization problem formulation and solving.	[SW1] Assessment of factual knowledge

Subject contents	• Principles of gradient and non-gradient optimization algorithms • Metaheuristic optimization utilizing population-based optimization models • Solving real-life engineering problems related to space system design • Working with open-source (Python) optimization libraries
Prerequisites and co-requisites	-

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	50.0%	50.0%
	exam	50.0%	50.0%

Recommended reading	Basic literature	Students will receive a reading list at the beginning of the semester.
	Supplementary literature	-
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	-
Work placement	Not applicable