GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Selected methods of decision support in industrial processes, PG_00053426		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Robert Piotrowski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

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	30	5.0	40.0	75

Subject objectives

The aim of the course will be to familiarize students with selected issues of decision support in industrial processes.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

Organization of the course. Basic information.

Discreet industrial processes - examples and modelling.

Decision support methods - discrete processes (integer and binary) - branch and bound algorithm.

Decision support methods - binary processes.

Basics of graph theory. Characteristics of network processes.

Methods of decision support - network issues - cont.

Transportation issues and the problem of a salesman.

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Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory	50.0%	30.0%
Written exam	50.0%	70.0%

Recommended reading	Basic literature	1. Praca zbiorowa (red. Sikora W.). Badania operacyjne. PWE, Warszawa 2008. 2. Trzaskalik T. Wprowadzenie do badań operacyjnych z komputerem. Wydanie 2. PWE, Warszawa 2008. 3. Deo N. Teoria grafów i jej zastosowania w technice i informatyce. PWN, Warszawa 1980 (tłumaczenie). 4. Gawlik J., Plichta J., Świć A. Procesy produkcyjne. PWE, Warszawa 2013.
	Supplementary literature	1. Cormen T.H., Leiserson Ch.,E. Rivest R., Stein C. Wprowadzenie do algorytmów. Wydanie 7. PWN, Warszawa 2012 (tłumaczenie).
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Find a solution for the decision-making model using the Balassa algorithm with filter. 2 The binary variable y and the non-negative continuous variable x are given. Bring a non-linear x*y expression to linear form.	
Work placement	Not applicable	