



Subject card

Subject name and code	Operational Research, PG_00067704						
Field of study	Management						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2026/2027	
Education level	second-cycle studies	Subject group				Obligatory subject group in the field of study Subject group related to scientific research in the field of study	
Mode of study	Part-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	2	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Management Engineering and Quality -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	8.0	11.0	5.0	0.0	0.0	24
	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	24		3.0		73.0	100
Subject objectives	Solves complex problems in the organization by formulating quantitative models that allow making rational decisions						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K7_W06] knows and understands the principles of evaluating the reliability of utilized data, applying in-depth specialized knowledge in the field of economic analysis.		assesses data reliability and uses optimization tools to solve problems across organizational areas			[SW1] Assessment of factual knowledge	
	[K7_U04] is able to prepare and convincingly present the results of specialized analyses, providing in-depth interpretation during debates and meetings with various audiences.		is able to interpret the results of conducted activities in a thorough manner			[SU3] Assessment of ability to use knowledge gained from the subject	
Subject contents	<p>Course content – lecture</p> <p>Basic issues of operations research - essential features and structure of decision-making situations</p> <p>General form of the linear optimization model, interpretation and analysis of the solution</p> <p>Construction of linear optimization models for various optimization problems</p> <p>Graphic method, simplex algorithm</p> <p>Dual linear optimization model</p> <p>Integer optimization model</p> <p>Elements of non-linear programming</p> <p>Multi-criteria models</p> <p>Elements of graph theory</p> <p>Planned network - CPA, CPM, PERT, CCPM methods</p> <p>Ford-Fulkerson algorithm</p> <p>Sequence problem</p> <p>Elements of dynamic programming</p>						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade	
	Exam		60.0%			50.0%	
	Colloquia		60.0%			50.0%	

Recommended reading	Basic literature	Zawadzka L.(1996). Metody ilościowe w organizacji i zarządzaniu, cz. I. Gdańsk, Wyd. PG. Zawadzka L. (1997). Metody ilościowe w organizacji i zarządzaniu cz. II. Gdańsk, Wyd. PG. Kukuła K (red.). (2016). Badania operacyjne w przykładach i zadaniach. Warszawa, PWN.
	Supplementary literature	Anholcer M. (2023). Badania operacyjne. Poznań, Wyd. UE w Poznaniu. Ignasiak E. (red.). (2001). Badania operacyjne. Warszawa, PWE. Krawczyk S.(1996). Badania operacyjne dla menedżerów. Wrocław, Wyd. AE we Wrocławiu. Sikora W.(2008). Badania operacyjne. Warszawa, PWE.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Solving linear programming models using the simplex method Critical path analysis using the PERT method	
Practical activities within the subject	Not applicable	

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