



Subject card

Subject name and code	OPERATIONAL RESEARCH, PG_00060947						
Field of study	Management, Management						
Date of commencement of studies	February 2025	Academic year of realisation of subject				2024/2025	
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	Full-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	1	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						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Jolanta Łopatowska				
	Teachers		dr inż. Jolanta Łopatowska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45		7.0		48.0	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] identifies reliable sources of information relevant to the analyzed issues		Solves problems using optimization tools, integrating data from many areas of the organization's operation.			[SW1] Assessment of factual knowledge	
	[K7_U04] prepares and presents convincing, professional presentations of the results of its activities, with their in-depth interpretation		interprets in an in-depth way the results of the activities carried out			[SU3] Assessment of ability to use knowledge gained from the subject	
Subject contents	<p>Basic issues of operations research - essential features and structure of decision-making situations            General form of the linear optimization model, interpretation and analysis of the solution            Construction of linear optimization models for various optimization problems            Graphic method, simplex algorithm            Dual linear optimization model            Integer optimization model            Elements of non-linear programming            Multi-criteria models            Elements of graph theory            Planned network - CPA, CPM, PERT, CCPM methods            Ford-Fulkerson algorithm            Sequence problem            Elements of dynamic programming</p>						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade	
	Colloquia		60.0%			50.0%	
	Exam		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	Adresy na platformie eNauczanie: Badania operacyjne MSU3/ MSU4 stac. 2024/2025 - Moodle ID: 42875 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42875">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42875</a>
Example issues/ example questions/ tasks being completed	Solving linear programming models using the simplex method Critical path analysis using the PERT method	
Work placement	Not applicable	

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