



Subject card

Subject name and code	, PG_00061833						
Field of study	Management and Production Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject				2024/2025	
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	2	Language of instruction				Polish	
Semester of study	3	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Zakład Materiałoznawstwa I Technologii Materiałowych -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Dionizy Czekaj				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	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		0.0		0.0	45
Subject objectives	To introduce students with the mathematical foundations and selected applications of game theory, especially for solving conflict situations or cooperation.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U01] can obtain information from literature, databases and others sources, also in English or another foreign language recognized as the language of international communication in a given engineering discipline; is able to integrate the obtained information, interpret it, as well as draw conclusions and formulate and justify opinions.	The student is able to obtain information from literature, databases and other sources, also in English.			[SU4] Assessment of ability to use methods and tools		
	[K7_K01] is aware of the need to expand knowledge and verify the methods of solving problems by consulting experts	The student understands the need to expand their knowledge.			[SK2] Assessment of progress of work		
	[K7_K02] is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions made demonstrates knowledge of actions to reduce risk and anticipate the social impact of engineering and manufacturing activities	The student is aware of the non-technical aspects and effects of engineering activities.			[SK2] Assessment of progress of work		
Subject contents	Introduction. Game examples. Nominal form games and dominated strategies. Nash equilibrium. Equilibrium in mixed strategies. Extensive character of the game. Repeated games. Evolution Games. Cooperative games. Elements of game learning theory.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Final test		51.0%		50.0%		
	Laboratory classes		100.0%		50.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. T. Płatkowski, Wstęp do Teorii Gier, Uniwersytet Warszawski, 2012.</li> <li>2. M. Malawski, A. Wieczorek, H. Sosnowska. Konkurencja i kooperacja. Teoria gier w ekonomii i naukach społecznych. Wydawnictwo Naukowe PWN, 1997.</li> <li>3. M. Ramsza. Elementy modelowania ekonomicznego opartego na teorii uczenia się w grach populacyjnych. Oficyna Wydawnicza SGH Warszawa, 2010.</li> <li>4. R. Laraki, J. Renault, S.Sorin, Teoria Gier. Podstawy matematyczne, Wydawnictwo Naukowe PWN</li> </ol>
	Supplementary literature	<ol style="list-style-type: none"> <li>1. P.D. Straffin, Teoria gier. Warszawa: Wydawnictwo Naukowe Scholar, 2004.</li> <li>2. K. Binmore, Teoria gier, Wydawnictwo Uniwersytetu Łódzkiego</li> <li>3. P. Kilber, Wprowadzenie do teorii gier, Uniwersytet Ekonomiczny w Poznaniu</li> </ol>
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Classical economic approaches in game theory</li> <li>2. Application of game theory in management</li> <li>3. Player added value</li> </ol>	
Work placement	Not applicable	

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