



Subject card

Subject name and code	SUSTAINABLE DEVELOPMENT MODELING, PG_00070610						
Field of study	Economics						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2028/2029	
Education level	first-cycle studies	Subject group				Optional subject group 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	3	Language of instruction				Polish	
Semester of study	5	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Statistics and Econometrics -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Marta Kuc-Czarnecka					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=46147						
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	3.0	52.0	100		
Subject objectives	preparing students to accurately select quantitative methods and obtain reliable data for conducting analyses in the field of sustainable development						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U07] uses advanced information technologies to enhance data analysis and decision-making processes.	is able to apply advanced information technologies and analytical tools to model sustainable development, conduct data analysis, and support decision-making processes under conditions of volatility and uncertainty.			[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	[K6_W03] is familiar with reliable sources of information and employs advanced knowledge to explain the fundamental dilemmas of the contemporary economy	knows and understands methods for identifying reliable sources of information in the context of acquiring data for modelling sustainable development			[SW1] Assessment of factual knowledge		
	[K6_K02] is prepared to make competent and ethical decisions to create and maintain economic, social, and environmental values, demonstrating entrepreneurial actions.	is ready to make competent and ethical decisions in the process of modelling and evaluating sustainable development scenarios aimed at creating and sustaining economic, social, and environmental value			[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness		

Subject contents	<p>Course content – lecture</p> <p>Sustainable development as an example of a multidimensional phenomenon.</p> <p>Selection of indicators of sustainable development.</p> <p>Composite indicator of sustainable development - stimulation and normalization of variables.</p> <p>Composite indicator of sustainable development - aggregation and weighting of variables.</p> <p>Sensitivity analysis of the composite indicator of sustainable development.</p> <p>Linear ordering of countries according to the degree of achievement of the SDGs.</p> <p>Grouping countries according to the degree of achievement of the SDGs - taxonomic analyzes.</p> <p>Social convergence in the context of sustainable development</p> <p>Upward convergence in monitoring the achievement of the SDGs.</p> <p>The spatial taxonomic measure of sustainable development.</p> <p><u>Soft modelling of sustainable development.</u></p>		
	<p>Course content – laboratory</p> <p>Sustainable development as an example of a multidimensional phenomenon.</p> <p>Selection of indicators of sustainable development.</p> <p>Composite indicator of sustainable development - stimulation and normalization of variables.</p> <p>Composite indicator of sustainable development - aggregation and weighting of variables.</p> <p>Sensitivity analysis of the composite indicator of sustainable development.</p> <p>Linear ordering of countries according to the degree of achievement of the SDGs.</p> <p>Grouping countries according to the degree of achievement of the SDGs - taxonomic analyzes.</p> <p>Social convergence in the context of sustainable development</p> <p>Upward convergence in monitoring the achievement of the SDGs.</p> <p>The spatial taxonomic measure of sustainable development.</p> <p><u>Soft modelling of sustainable development.</u></p>		
Prerequisites and co-requisites	basic statistical and econometric skills		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral exam	60.0%	50.0%
	Group project	60.0%	50.0%
Recommended reading	Basic literature	<p>Perło, D. (2014). Modelowanie zrównoważonego rozwoju. Białystok: Wydawnictwo Uniwersyteckie Trans Humana.</p> <p>Panek, T. Zwierzchowski, J. (2013). Statystyczne metody wielowymiarowej analizy porównawcze. Teoria i zastosowania, Warszawa: Oficyna Wydawnicza SGH.</p> <p>Młodak, A. (2006). Statystyczna analiza wielowymiarowa w statystyce regionalnej, Warszawa: Difin.</p>	
	Supplementary literature	<p>OECD (2008). Handbook on Constructing Composite Indicators. Methodology and User Guide. Paris: OECD Publications.</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Construct a composite indicator for the 7th sustainable development goal.</p> <p>Prepare a linear ordering and group the European Union countries in terms of achieving this goal.</p> <p>Assess the convergence trends in the implementation of the seventh SDG.</p>		
Practical activities within the subject	Not applicable		

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