GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Essentials of Statistics, PG_00044436		
Field of study	Engineering Management		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
Education level	first-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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Economic Sciences -> Faculty of Management and Economics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Świetlik	
	Teachers	dr inż. Krzysztof Świetlik	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	16.0	0.0	16.0	0.0	0.0	32

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	32	8.0	85.0	125

Subject objectives

1. Introduction to basic concepts of descriptive statistics.
2. Learning practical skills in statistical methods.
3. Ability to analyze statistical data and formulating the correct conclusions.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] knows the statistical and IT methods and tools that enable the acquisition and presentation of data on the organisation's resources, including technical resources	The student has basic knowledge of the statistical nature of economic phenomena, knows the methods and tools, including data acquisition techniques, appropriate for creating their statistical description.	[SW3] Assessment of knowledge contained in written work and projects
[K6_W06] has a basic knowledge of methods and tools for conducting research and analyses related to particular areas of the enterprise's operations and its environment	The student has basic knowledge about the statistical nature of economic phenomena, knows the methods and tools, including data acquisition techniques, appropriate for creating their statistical description. The student is able to correctly determine the nature and strength of the relationship between the examined features in the sample.	[SW3] Assessment of knowledge contained in written work and projects
[K6_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems	The student is able to use mathematical models to describe the relations between selected economic variables.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U09] obtains data for analysis and interpretation of results using information technology	The student is able to choose the description method to the type of data, using both accounting calculations and statistical software. On the basis of the obtained results (descriptive measures of the structure, correlation, dynamics of phenomena) the student makes an interpretation.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment

Subject contents	Non-parametric description of the distribution of the sample: the ranks of distribution, histogram, empirical distribution function. Parametric description of the distribution of the sample: measures of location, variability, asymmetry and concentration, measurement of economic inequality: Lorenz curve, Schutz-Pietra measures of inequality, Gini coefficient, Atkinson etc., two or more dimensional nonparametric description of the distribution of the sample: frequency distribution (two-dimensional), histograms, scatter plots. Parametric description of the two-dimensional population: moments, covariance, correlation coefficient, partial and multiple correlation coefficient, Spearman's rank correlation coefficient, multiple regression functions, the method of least squares, introduction to time series analysis, classical decomposition of time series, Introduction to the theory of indices: dynamics' indices, price indices, equivalence scales.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	60.0%	50.0%
Final test	60.0%	50.0%

Recommended reading

Basic literature	Kot S.M., Sokołowski A., Jakubowski J. „Statystyka”, Difin, Warszawa, 2007. Sobczak M. „Statystyka. Podstawy teoretyczne, przykłady, zadania. Wyd. UMCS, Lublin, 1998 Zając K., Zarys metod statystycznych, PWE, Warszawa, 1994
Supplementary literature	Makać i D. Urbanek-Krzysztofiak: Metody opisu statystycznego. (wyd. Uniw. Gdańskiego, 2005).
eResources addresses	

Example issues/ example questions/ tasks being completed	1. How do we define variance and standard deviation? 2. What is variable correlation? 3. What is regression? 4. Give the correct conditions for the application of the Pearson's linear correlation coefficient. 5. What are the tasks of the regression function? 6. What limitations exist for the analysis of relationships using chi-square statistics? 7. What are contingency factors and what do they tell us about?
Work placement	Not applicable