GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Analysis and Processing of Research Data, PG_00073390		
Field of study	Mechanical Engineering		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Biomaterials Technology -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Bartmański	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	45.0	0.0	75

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=9099

Moodle ID: 9099 Analysis and Processing of Research Data https://enauczanie.pg.edu.pl/2025/course/view.php?id=9099

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	75	5.0	20.0	100

Subject objectives

The aim of the course is to develop skills in processing, analyzing, interpreting, and presenting research results in mechanical engineering using appropriate statistical methods and computational tools.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language	Actively participates in classes on the analysis and processing of research results conducted in English.	[SK2] Assessment of progress of work
[K7_U01] utilizes information obtained from the literature and other sources in the field of Mechanics and Mechanical Engineering and presents and analyses the results of solutions to technical problems in this field	Analyzes, processes, and interprets research results using appropriate methods and information obtained from professional literature	[SU1] Assessment of task fulfilment
[K7_W13] explains the main principles of individual and teamwork organization, including various forms of entrepreneurship utilizing knowledge from the field of engineering and technical sciences and disciplines relevant to the course of study	Explains the principles of individual and teamwork organization in the processing and analysis of research results.	[SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>Course content – lecture

Fundamentals of research data processing and analysis. Organization and preparation of data for analysis. Basics of descriptive and inferential statistics. Selection of analytical methods according to data type and research problem. Principles of interpretation and graphical presentation of results.

Course content – laboratory

Practical processing of research data using computer software. Calculation of basic statistical parameters, analysis of data distribution, hypothesis testing, analysis of relationships between variables, and preparation of graphs and tables.

Course content – project

Independent analysis of a research dataset including data preparation, selection of analytical methods, calculations, interpretation of results, and presentation in the form of a report.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Report</td><td>56.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Textbooks and materials on statistics and engineering data analysis.
Documentation and training materials for Microsoft Excel, Origin, GraphPad Prism, MATLAB, or equivalent software.
Peer-reviewed scientific publications used as examples of research data analysis and presentation.</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>• Organization and preparation of research data.
• Descriptive statistics and data distribution analysis.
• Hypothesis testing and comparison of groups.
• Analysis of relationships between variables and interpretation of results.
• Graphical presentation and reporting of research results.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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