GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Data Analysis and Presentation, PG_00060640		
Field of study	Transport and Logistics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Obligatory subject group 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	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Applied Computer Science -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Życzkowski	
	Teachers	dr inż. Marcin Życzkowski dr inż. Patrycja Puzdrowska	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	15.0	0.0	30

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	30	4.0	16.0	50

Subject objectives

The student became familiar with IT tools that will allow him to visualize data in a clear and attractive way for the recipient.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] can formulate a simple engineering task and its specification in the field of design, maintenance and operation of transport means and systems	The student, having basic knowledge of Transport and Logistics, performs analysis using tools from the Python libraries and is able to diagnose problems.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools
[K6_U02] can work individually and in a team, communicate using various techniques in a professional environment, as well as document, analyze and present the results of his work; can estimate the time needed to complete a given task	The student is able to make the appropriate selection of IT tools so that the loaded data can first be cleaned, filtered and prepared for further work in visualization and analysis in the Python environment.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K6_W04] has well established knowledge in the field of computer science, electronics, automation and control, information technology and computer graphics, useful for understanding the possibilities of applying them in transport	The student is able to independently visualize data from a file using specialized tools from appropriate Python libraries	[SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>The student will become familiar with the Pandas, Seaborn, Numpy, and Matplotlib libraries.

Pandas is a library that makes it easy to load, transform, explore, and analyze tabular data such as spreadsheets or databases.

The student will learn the basic structures from this library: Series, DataFrame.

The student will be able to load and save data from various sources, such as CSV files, Excel, SQL, JSON and many others. You can also save data to these formats. He will be able to select and index data. It will perform operations on the data such as filtering, sorting, grouping, combining and many others.

The student will also learn the Seaborn and Matplotlib libraries and will make various types of plots, including scatter plots, histograms, heat maps, boxplots and others.

The student will also learn about the Numpy library.

It will also use various types of statistical functions and mathematical operations.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>The student knows the basics of Python programming</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></td><td>50.0%</td><td>20.0%</td></tr>
<tr><td></td><td>50.0%</td><td>80.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>https://pandas.pydata.org/

https://seaborn.pydata.org/

https://numpy.org/

https://matplotlib.org/</td></tr>
<tr><td>Supplementary literature</td><td>https://pandas.pydata.org/

https://seaborn.pydata.org/

https://numpy.org/

https://matplotlib.org/</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>What is DataFrame in Pandas library.

Can Series data be converted to a list data structure?</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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