



Subject card

Subject name and code	Data Analysis and Presentation, PG_00060640						
Field of study	Transport and Logistics						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
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 Karol Ciba dr inż. Paweł Chodnicki dr hab. inż. Rafał Szałpczyński 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_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		
	[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.			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[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.			[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		

Subject contents	<p>The student will become familiar with the Pandas, Seaborn, Numpy, and Matplotlib libraries.</p> <p>Pandas is a library that makes it easy to load, transform, explore, and analyze tabular data such as spreadsheets or databases.</p> <p>The student will learn the basic structures from this library: Series, DataFrame.</p> <p>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.</p> <p>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.</p> <p>The student will also learn about the Numpy library.</p> <p>It will also use various types of statistical functions and mathematical operations.</p>											
Prerequisites and co-requisites	The student knows the basics of Python programming											
Assessment methods and criteria	<table border="1" data-bbox="451 551 1477 651"> <thead> <tr> <th data-bbox="451 551 794 584">Subject passing criteria</th> <th data-bbox="794 551 1137 584">Passing threshold</th> <th data-bbox="1137 551 1477 584">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 584 794 618"></td> <td data-bbox="794 584 1137 618">50.0%</td> <td data-bbox="1137 584 1477 618">80.0%</td> </tr> <tr> <td data-bbox="451 618 794 651"></td> <td data-bbox="794 618 1137 651">50.0%</td> <td data-bbox="1137 618 1477 651">20.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade		50.0%	80.0%		50.0%	20.0%
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Recommended reading	<table border="1" data-bbox="451 663 1477 1402"> <tbody> <tr> <td data-bbox="451 663 794 976">Basic literature</td> <td colspan="2" data-bbox="794 663 1477 976"> https://pandas.pydata.org/ https://seaborn.pydata.org/ https://numpy.org/ https://matplotlib.org/ </td> </tr> <tr> <td data-bbox="451 976 794 1301">Supplementary literature</td> <td colspan="2" data-bbox="794 976 1477 1301"> https://pandas.pydata.org/ https://seaborn.pydata.org/ https://numpy.org/ https://matplotlib.org/ </td> </tr> <tr> <td data-bbox="451 1301 794 1402">eResources addresses</td> <td colspan="2" data-bbox="794 1301 1477 1402"> Adresy na platformie eNauczenie: Analiza i prezentacja danych 2025 - Moodle ID: 42868 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=42868 </td> </tr> </tbody> </table>			Basic literature	https://pandas.pydata.org/ https://seaborn.pydata.org/ https://numpy.org/ https://matplotlib.org/		Supplementary literature	https://pandas.pydata.org/ https://seaborn.pydata.org/ https://numpy.org/ https://matplotlib.org/		eResources addresses	Adresy na platformie eNauczenie: Analiza i prezentacja danych 2025 - Moodle ID: 42868 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=42868	
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Example issues/ example questions/ tasks being completed	<p>What is DataFrame in Pandas library.</p> <p>Can Series data be converted to a list data structure?</p>											
Work placement	Not applicable											

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