



Subject card

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|---|--|--|---|-------------------------------------|---------|--|-----|
| Subject name and code | Data Analysis and Presentation, PG_00065496 | | | | | | |
| Field of study | Naval Architecture and Offshore Structures | | | | | | |
| Date of commencement of studies | February 2025 | | Academic year of realisation of subject | | | 2024/2025 | |
| Education level | second-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 | 1 | | Language of instruction | | | Polish | |
| Semester of study | 1 | | ECTS credits | | | 4.0 | |
| Learning profile | general academic profile | | Assessment form | | | exam | |
| Conducting unit | Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Marcin Życzkowski | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 18.0 | 0.0 | 0.0 | 18.0 | 0.0 | 36 |
| | 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 | 36 | | 9.0 | | 55.0 | 100 |
| Subject objectives | The student will become familiar with IT tools that enable processing and visualizing data in a clear and appealing way for the audience. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | | Method of verification | |
| | [K7_W04] demonstrates knowledge encompassing selected issues in the field of advanced knowledge, particularly in the scope of methods, techniques, tools, and algorithms specific to Naval Architecture and Ocean Engineering | | The student utilizes specialized mathematical and statistical operations to identify a problem described using external data (files). | | | [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation | |
| | [K7_W02] demonstrates structured and theory supported knowledge encompassing key issues in the field of Naval Architecture and Ocean Engineering, enabling modeling and analysis of shipborne and offshore systems, devices, and processes | | The student knows and understands the basic concepts and syntax of the Python programming language, with a particular focus on its applications in engineering and data analysis. They understand the importance of proper data visualization for the effective presentation of technical and engineering analysis results. | | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation | |

| Subject contents | <p>Familiarization with the basics of the Python language:</p> <p>Functions (creation, usage), understanding operators (arithmetic, logical, relational), retrieving and formatting user input, string operations (slicing, splitting, joining, letter case, pattern matching, replacing patterns, removing spaces, newline and tabulation, special characters in text), creating conditions using conditional statements (if, else, elif), introduction to new data structures (lists, sets, tuples, dictionaries), understanding list, dictionary, and set comprehensions, how loops work (for, while), file handling (loading, reading), random events (random), and handling data transmission formats (TXT, CSV, JSON).</p> <p>The student will become familiar with the Pandas library, which facilitates exploring and analyzing data in tabular form. The student will learn to load and save data from various sources such as CSV files, Excel, SQL, JSON, and others, and save data back into these formats. The student will also be able to select and index data, performing operations such as filtering, sorting, grouping, merging, and more.</p> <p>The student will also get acquainted with the Numpy library and will use various statistical functions and mathematical operations.</p> <p>Additionally, the student will learn the Seaborn and Matplotlib libraries, creating various types of charts, including scatter plots, histograms, heatmaps, box plots, and others.</p> | | | | | | | | | | | |
|--|---|-------------------------------|--|--------------------------|---|-------------------------------|--------------------------|---|-------|----------------------|----------------------------------|-------|
| Prerequisites and co-requisites | The student knows the basics of Python programming. | | | | | | | | | | | |
| Assessment methods and criteria | <table border="1" data-bbox="448 775 1487 880"> <thead> <tr> <th data-bbox="448 775 794 808">Subject passing criteria</th> <th data-bbox="794 775 1141 808">Passing threshold</th> <th data-bbox="1141 775 1487 808">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 808 794 842">Lecture</td> <td data-bbox="794 808 1141 842">50.0%</td> <td data-bbox="1141 808 1487 842">50.0%</td> </tr> <tr> <td data-bbox="448 842 794 880">Project</td> <td data-bbox="794 842 1141 880">50.0%</td> <td data-bbox="1141 842 1487 880">50.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | Lecture | 50.0% | 50.0% | Project | 50.0% | 50.0% |
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| Lecture | 50.0% | 50.0% | | | | | | | | | | |
| Project | 50.0% | 50.0% | | | | | | | | | | |
| Recommended reading | <table border="1" data-bbox="448 887 1487 1731"> <tbody> <tr> <td data-bbox="448 887 794 1283">Basic literature</td> <td colspan="2" data-bbox="794 887 1487 1283"> https://www.python.org/ https://pandas.pydata.org/ https://numpy.org/ https://seaborn.pydata.org/ https://matplotlib.org/ </td> </tr> <tr> <td data-bbox="448 1283 794 1686">Supplementary literature</td> <td colspan="2" data-bbox="794 1283 1487 1686"> https://www.python.org/ https://pandas.pydata.org/ https://numpy.org/ https://seaborn.pydata.org/ https://matplotlib.org/ </td> </tr> <tr> <td data-bbox="448 1686 794 1731">eResources addresses</td> <td colspan="2" data-bbox="794 1686 1487 1731">Adresy na platformie eNauczanie:</td> </tr> </tbody> </table> | | | Basic literature | https://www.python.org/ https://pandas.pydata.org/ https://numpy.org/ https://seaborn.pydata.org/ https://matplotlib.org/ | | Supplementary literature | https://www.python.org/ https://pandas.pydata.org/ https://numpy.org/ https://seaborn.pydata.org/ https://matplotlib.org/ | | eResources addresses | Adresy na platformie eNauczanie: | |
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| Example issues/ example questions/ tasks being completed | <p>Determine the value of the result variable after using the defined function.</p> <p>Calculate the mean (median) for records that meet the specified criteria.</p> | | | | | | | | | | | |
| Work placement | Not applicable | | | | | | | | | | | |

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