

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| Subject name and code | Object Programming and Data Analitics, PG_00060643 | | | | | | | | |
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| Field of study | Transport and Logistics | | | | | | | | |
| Date of commencement of studies | October 2023 | | 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 | 2 | | Language of instruction | | | Polish | | | |
| Semester of study | 3 | | ECTS credits | | | 4.0 | | | |
| 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 | Subject supervisor | | dr inż. Marcin Życzkowski | | | | | | |
| of lecturer (lecturers) | Teachers | dr inż. Marcin Życzkowski | | | | | | | |
| Lesson types and methods | Lesson type | Lecture | Tutorial | Laboratory | Project | t | Seminar | SUM | |
| of instruction | Number of study hours | 15.0 | 30.0 | 0.0 | 0.0 | | 0.0 | 45 | |
| | E-learning hours inclu | -learning hours included: 0.0 | | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didaction classes included in stur- plan | | Participation in consultation hours | | Self-study | | SUM | |
| | Number of study hours | 45 | | 8.0 | | 47.0 | | 100 | |
| Subject objectives | Application of the programming language (PYTHON) to solve transport problems using real data such as: AIS, GPS, VTS, Bitmap. On the basis of the obtained data, the student analyzes the data. It prepares the obtained data for the implementation of a specific task. During the task, the student uses the previously learned Python libraries: Pandas, NumPy, Matplotlib. | | | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | | Method of verification | | | |
| | [K6_W04] has well established knowledge in the field of compute science, electronics, automation and control, information technology and computer graphics, useful for understanding the possibilities of applying them in transport | | Learning to conduct basic analyzes using models created in PYTHON. Acquisition of algorithm design skills | | | [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation | | | |
| [K6_U01] can obtain information from literature, databases and other sources; verify and systematize the information obtained, interpret it and draw conclusions, formulate and justify opinions | | The student is able to independently develop a final report for the completed project in the PYTHON environment | | | [SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment | | | | |
| Subject contents | The student has a task (project) to complete. The teacher provides data on the movement of the sea vessel. The student's task is to visualize the route of the sea vessel on the map (Basemap). Perform ship motion analysis. Prepare a report in the form of a txt file, which will contain information every 30 minutes about its position, speed, course. In addition, the report should contain information about the type of ship (basic data), average speed, minimum and maximum speed. | | | | | | | | |
| Prerequisites and co-requisites | the basics of the Python language | | | | | | | | |
| Assessment methods | Subject passin | Passing threshold | | | Percentage of the final grade | | | | |
| and criteria | Project | 50.0% | | | 100.0% | | | | |

| Recommended reading | Basic literature | https://docs.python.org/pl/3/tutorial/index.html | | | | | |
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| | | https://helcom.fi/baltic-sea-trends/data-maps/ | | | | | |
| | | http://data.bshc.pro/#2/53.8/12.5 | | | | | |
| | Supplementary literature | https://www.udemy.com/topic/python/ | | | | | |
| | eResources addresses | Adresy na platformie eNauczanie: | | | | | |
| Example issues/ example questions/ tasks being completed | Ship movement data transformation, AIS data, GPS data Transformation and visualization of bathymetric data. Statistical analysis tasks: mean, variance, etc. | | | | | | |
| Work placement | Not applicable | | | | | | |

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