



Subject card

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|---|---|--|--|-------------------------------------|-------------------|---|-----|--|
| Subject name and code | , PG_00066711 | | | | | | | |
| Field of study | Transport | | | | | | | |
| Date of commencement of studies | October 2025 | | Academic year of realisation of subject | | 2025/2026 | | | |
| Education level | first-cycle studies | | Subject group | | | | | |
| 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 | | 3.0 | | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | | |
| Conducting unit | Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology | | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor Teachers | | dr inż. Marek Jasina | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM | |
| | Number of study hours | 0.0 | 0.0 | 30.0 | 0.0 | 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 | | 0.0 | | 0.0 | 30 | |
| Subject objectives | <ul style="list-style-type: none">learning the basics of engineering programming in MATLABlearning to use MATLAB to solve basic data analysis problemspresentation of the basic capabilities of Ms Excel sheets for data analysis | | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | | Method of verification | | |
| | [K6_U05] able to use IT graphic techniques suitable for tasks typical of designing, construction, operation, and diagnosing means and transportation systems. | | The student is able to solve engineering problems related to the basic principles of physics and the processing of experimental data. | | | [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task | | |
| | [K6_W03] has knowledge of informatics, electronics, telecommunications, automation and control, information technologies, computer graphics, geodesy and satellite navigation which is useful for understanding how it can be applied in transport | | The student is able to define and initialize variables and is able to distinguish between their types. The student is able to use mathematical operators and perform matrix operations in MATLAB. The student knows the basics of logic in programming and is able to write conditional "if" statements. The student can use the "while" and "for" loops. The student is able to use the built-in functions of the environment and is able to write his own functions. The student is able to use external files and calculate basic statistical quantities. The student knows the basics of drawing graphs and two basic numerical methods: trapezoid integration and linear approximation. | | | [SW3] Assessment of knowledge contained in written work and projects | | |

| Subject contents | <p>Course content – laboratory</p> <p>1. Installation and configuration of the environment. Basic information on its operation. 2. Presentation of the basic types of variables and mathematical operators. Vectors and matrix operations. 3. Logic in MATLAB. Presentation of logical operators and conditional if statement. Using while and for loops. 4. Functions in MATLAB. 5. Basics of data analysis - presentation of basic statistical values. Loading data from external files and drawing charts. Two basic numerical methods: trapezoid integration and linear approximation.</p> | | | | | | | | | |
|---------------------------------|--|-------------------------------|-------------------|-------------------------------|--|-------|-------|--|-------|-------|
| Prerequisites and co-requisites | Mathematics, Physics | | | | | | | | | |
| Assessment methods and criteria | <table border="1"> <thead> <tr> <th data-bbox="452 536 790 563">Subject passing criteria</th><th data-bbox="790 536 1129 563">Passing threshold</th><th data-bbox="1129 536 1483 563">Percentage of the final grade</th></tr> </thead> <tbody> <tr> <td data-bbox="452 563 790 590"></td><td data-bbox="790 563 1129 590">50.0%</td><td data-bbox="1129 563 1483 590">50.0%</td></tr> <tr> <td data-bbox="452 590 790 617"></td><td data-bbox="790 590 1129 617">50.0%</td><td data-bbox="1129 590 1483 617">50.0%</td></tr> </tbody> </table> | Subject passing criteria | Passing threshold | Percentage of the final grade | | 50.0% | 50.0% | | 50.0% | 50.0% |
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| | 50.0% | 50.0% | | | | | | | | |
| | 50.0% | 50.0% | | | | | | | | |
| Recommended reading | <p>Basic literature</p> <p>https://www.mathworks.com/help/matlab/</p> <p>https://www.mathworks.com/help/matlab/ref/format.html</p> <p>https://www.anaconda.com/products/distribution</p> <p>https://support.microsoft.com/pl-pl/excel</p> | | | | | | | | | |

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| | Supplementary literature | <p>https://www.mathworks.com/help/matlab/ref/double.html</p> <p>https://www.mathworks.com/help/matlab/matlab_prog/operator-precedence.html</p> <p>https://www.mathworks.com/help/matlab/characters-and-strings.html</p> <p>https://www.mathworks.com/help/matlab/learn_matlab/matrices-and-arrays.html</p> <p>https://www.mathworks.com/help/matlab/dictionary.html</p> <p>https://www.mathworks.com/help/matlab/trigonometry.html</p> <p>https://www.mathworks.com/help/matlab/random-number-generation.html</p> <p>https://www.mathworks.com/help/matlab/ref/if.html</p> <p>https://www.mathworks.com/help/matlab/ref/while.html</p> <p>https://www.mathworks.com/help/matlab/ref/for.html</p> <p>https://www.mathworks.com/help/matlab/ref/function.html</p> <p>https://www.mathworks.com/help/matlab/ref/load.html</p> <p>https://www.mathworks.com/help/matlab/ref/readmatrix.html</p> <p>https://www.mathworks.com/help/matlab/ref/readtable.html</p> <p>https://www.mathworks.com/help/matlab/ref/plot.html</p> <p>https://www.mathworks.com/help/matlab/ref/fill.html</p> <p>https://www.mathworks.com/help/matlab/ref/matlab.graphics.chart.primitive.histogram.html</p> <p>https://www.mathworks.com/help/matlab/ref/scatter.html</p> <p>https://www.mathworks.com/help/matlab/ref/trapz.html</p> <p>https://www.mathworks.com/help/curvefit/fit.html</p> |
| | eResources addresses | |

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| Example issues/ example questions/ tasks being completed | <ul style="list-style-type: none"> • Write a function that calculates the trajectory of a bungee jumper. • Make a linear approximation of a given set of points. • Calculate basic statistics for a given dataset. |
| Practical activites within the subject | Not applicable |

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