



## Subject card

|   |  |  |   |            |            |  |     |
|---|--|--|---|------------|------------|--|-----|
| Subject name and code   | Programming in Matlab, PG_00047928   |  |   |            |            |  |     |
| Field of study  | Biomedical Engineering, Biomedical Engineering, Biomedical Engineering   |  |   |            |            |  |     |
| Date of commencement of studies   | October 2022   | Academic year of realisation of subject                  |   |            |            | 2022/2023  |     |
| Education level   | second-cycle studies   | Subject group  |   |            |            | Optional subject group<br>Subject group related to scientific research 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   | 1  | ECTS credits   |   |            |            | 1.0  |     |
| Learning profile  | general academic profile   | Assessment form  |   |            |            | assessment   |     |
| Conducting unit   | Zakład Fizyki Teoretycznej i Informatyki Kwantowej -> Instytut Fizyki i Informatyki Stosowanej -> Faculty of Applied Physics and Mathematics   |  |   |            |            |  |     |
| Name and surname of lecturer (lecturers)  | Subject supervisor   |  | dr inż. Patryk Jasik  |            |            |  |     |
|   | Teachers   |  | dr inż. Patryk Jasik  |            |            |  |     |
| Lesson types and methods of instruction   | Lesson type  | Lecture  | Tutorial  | Laboratory | Project    | Seminar  | SUM |
|   | Number of study hours  | 0.0  | 0.0   | 15.0       | 0.0        | 0.0  | 15  |
|   | E-learning hours included: 0.0   |  |   |            |            |  |     |
| Programowanie w Matlabie (2022) - Moodle ID: 24039<br><a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=24039">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=24039</a> |  |  |   |            |            |  |     |
| 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  | 15   | 1.0   |            | 9.0        |  | 25  |
| Subject objectives  | The main aim of the course is to show students functionalities and capabilities of the Matlab environment. The specific aim of the course is to develop practical programming skills in this environment, based on the programming knowledge acquired previously by students and using the knowledge of linear algebra and mathematical analysis.  |  |   |            |            |  |     |
| Learning outcomes   | Course outcome   |  | Subject outcome   |            |            | Method of verification   |     |
|   | [K7_W08] Knows and understands, to an increased extent, the fundamental dilemmas of modern civilisation, the main development trends of scientific disciplines relevant to the field of education.   |  | The student can create algorithms/applications in the Matlab program environment that allow solving to a limited extent selected problems of modern civilization or issues defined in the main development trends of scientific disciplines relevant to the field of study. |            |            | [SW3] Assessment of knowledge contained in written work and projects                         |     |
| Subject contents  | Introduction to Matlab environment. Basic features: arithmetic operations, variables, mathematical functions, vectors, graphs. Scripts and functions: creation of the scripts, creation of the functions, control blocks. Matrix Operations. Integration: symbolic integration and numerical integration. Differential Equations: symbolic solution of differential equations, numerical solution of differential equations. |  |   |            |            |  |     |
| Prerequisites and co-requisites   |  |  |   |            |            |  |     |
| Assessment methods and criteria   | Subject passing criteria   |  | Passing threshold   |            |            | Percentage of the final grade  |     |
|   | Reports of the three laboratory classes  |  | 50.0%   |            |            | 100.0%   |     |
| Recommended reading   | Basic literature   |  | 1. Dokumentacja programu Matlab, <a href="http://www.mathworks.com/help/matlab/">http://www.mathworks.com/help/matlab/</a>  |            |            |  |     |
|   |  |  | 2. S. R. Otto, J. P. Denier, "An introduction to programming and numerical methods in Matlab", Springer   |            |            |  |     |
|   | Supplementary literature   |  | 1. S. Attaway, "Matlab: A Practical Introduction to Programming and Problem Solving. Third Edition" Butterworth-Heinemann   |            |            |  |     |
| eResources addresses  |  |  |   |            |            |  |     |

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| Example issues/<br>example questions/<br>tasks being completed |                |
| Work placement   | Not applicable |