GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Informatics, PG_00044541		
Field of study	Transport		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Katarzyna Szepietowska	
	Teachers	mgr inż. Łukasz Żmuda-Trzebiatowski dr inż. Tomasz Falborski Szymon Kalinowski dr inż. Daniel Burkacki dr inż. Katarzyna Szepietowska	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	0.0	0.0	45

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	45	5.0	25.0	75

Subject objectives

1. Matlab programming and using of MATLAB environment
2. Application of Matlab language in solving engineering problems
3. Programming in Python
4. Application of programmig tools in transport

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] able to use IT and graphic techniques typically used for the design, construction, operation and diagnosis of means and systems of transport	Ability to use Matlab language in solving engineering problems 2. Ability to use Matlab libraries 3. Skills in Python application to solving problems engineering.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K6_W04] has basic 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	1. Basic knowledge about general concepts of computer science 2. Knowledge of the bases of programming.	[SW1] Assessment of factual knowledge

Subject contents

1. Basic programming concepts, algorithms, data structures.
2. Basics of Matlab language - general information; environment and use of the Matlab environment, libraries and tools;
language syntax and basic instructions; definitions of variables, arithmetic operators; operations of entry / exit; linear algebra; graphics; control instructions; script construction; applications for analysis engineering problems.
2. Basics of the Python language - basic instructions; the basics of programming; scripts, applications language for controlling software of an engineering nature used in the field of transport.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">1. Skills in using computers.
2. Basics of linear algebra.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Matlab</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Python</td><td>60.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Basic material will be available at the universoty website service OKNO or during the labs hours.
2. Lubowiecka I., Ambroziak A. [2016]: Matlab and its evironment, Gdańsk University of Technology Publisher, Gdańsk. [in Polish]
3. Jankowski R., Lubowiecka I., Witkowski W. [2003]: Basic programming in Matlab language, skrypt, Gdańsk. [in Polish]
4. MATLAB-The Language of Technical Computing. User’s manual.
5. Pratap R. [2009]: Matlab 7 dla naukowców i inżynierów. PWN, Warszawa.
6. Chris Fehily: Po prostu Python. Helion 2002.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. Zalewski A., Cegiełka R.: Matlab - numerical calculation and application. Wydawnictwo Nakom, Poznań 1997. [in Polish]
2. Harel D. [1992]: Rzecz o istocie informatyki. [in Polish]</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:
Informatyka - 2023/2024 - Moodle ID: 22265
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22265</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">1. Scripting in Matlab and Python
2. Implementation of the specified algorithm in Matlab and Python</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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