



Subject card

Subject name and code	Fundamentals of Computer Science, PG_00064109						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	October 2024	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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Mechaniki Stosowanej i Biomechaniki -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Wiktoria Wojnicz					
	Teachers	mgr inż. Kornel Piłat dr hab. inż. Wiktoria Wojnicz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	0.0	60
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	60	4.0		36.0		100
Subject objectives	The aim of the study is to acquire knowledge in the fundamentals of programming in medicine						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K01] knows his/her proficiencies and his/her limitations in performing professional tasks, he/she is aware of needing to improve his/her skills through the whole life, he/she has entrepreneurship and innovation skills, he/she is aware of engineering skills from the society point of view		Student develops his/her competences in the scope of fundamental of programming to solve engineering problems		[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work		
	[K6_U03] is able to use information and communication skills or research techniques to solve typical engineering tasks related to design, production and manufacturing of materials or machine components		Student can use knowledge acquired in this subject to create a code to process measurement data		[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		

Subject contents	<p>Lecture:</p> <p>MATLAB engineering tools to process data in medical measurements:</p> <p>files processing</p> <p>types of data and reading of data</p> <p>data visualization</p> <p>reading files obtained from medical measurement (txt, CSV, DICOM etc.)</p> <p>implementation of basic functions, loops and conditional expressions</p> <p>data matrix processing</p> <p>Project:</p> <p>Task1: processing of data obtained from biomechanical sensors</p> <p>Task 2: processing of data obtained from biomedical measurements</p>											
Prerequisites and co-requisites	Maths											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="448 1093 794 1137">Subject passing criteria</th> <th data-bbox="794 1093 1141 1137">Passing threshold</th> <th data-bbox="1141 1093 1477 1137">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 1137 794 1171">project passing</td> <td data-bbox="794 1137 1141 1171">50.0%</td> <td data-bbox="1141 1137 1477 1171">50.0%</td> </tr> <tr> <td data-bbox="448 1171 794 1205">lecture passing</td> <td data-bbox="794 1171 1141 1205">50.0%</td> <td data-bbox="1141 1171 1477 1205">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	project passing	50.0%	50.0%	lecture passing	50.0%	50.0%
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Recommended reading	<table border="1"> <tbody> <tr> <td data-bbox="448 1205 794 1238">Basic literature</td> <td colspan="2" data-bbox="794 1205 1477 1238">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</td> </tr> <tr> <td data-bbox="448 1238 794 1272">Supplementary literature</td> <td colspan="2" data-bbox="794 1238 1477 1272">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</td> </tr> <tr> <td data-bbox="448 1272 794 1473">eResources addresses</td> <td colspan="2" data-bbox="794 1272 1477 1473"> Adresy na platformie eNauczanie: Podstawy informatyki, W, IMM, zimowy 2024-2025 (PG_00064109) - Moodle ID: 41000 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41000 Podstawy informatyki, P, IMM, zimowy 2024-2025 (PG_00064109) - Moodle ID: 41031 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41031 </td> </tr> </tbody> </table>			Basic literature	https://www.mathworks.com/support/learn-with-matlab-tutorials.html		Supplementary literature	https://www.mathworks.com/support/learn-with-matlab-tutorials.html		eResources addresses	Adresy na platformie eNauczanie: Podstawy informatyki, W, IMM, zimowy 2024-2025 (PG_00064109) - Moodle ID: 41000 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41000 Podstawy informatyki, P, IMM, zimowy 2024-2025 (PG_00064109) - Moodle ID: 41031 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41031	
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Example issues/ example questions/ tasks being completed	<p>Create a code to read data from the electromyography measurements</p> <p>Create a code to process data obtained from the force sensor</p>											
Work placement	Not applicable											

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