



## Subject card

Subject name and code	Fundamentals of informatics in medicine, PG_00055732						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2021/2022		
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 None		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	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. Grzegorz Banaszek 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						
Adresy na platformie eNauczenie: Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</a> Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</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	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] he/she 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 can formulate strategy to find a solution on the base of the base of the knowledge acquired in the scope of this subject		[SK3] Assessment of ability to organize work [SK2] Assessment of progress of work		
	[K6_U03] he/she is able to use information-communication skills to solve typical engineering tasks related to design, production and utilization		Student can applying MATLAB software to solve basic engineering problems		[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task		

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="456 1104 794 1137">Subject passing criteria</th> <th data-bbox="799 1104 1137 1137">Passing threshold</th> <th data-bbox="1142 1104 1469 1137">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1137 794 1171">lecture passing</td> <td data-bbox="799 1137 1137 1171">50.0%</td> <td data-bbox="1142 1137 1469 1171">50.0%</td> </tr> <tr> <td data-bbox="456 1171 794 1205">project passing</td> <td data-bbox="799 1171 1137 1205">50.0%</td> <td data-bbox="1142 1171 1469 1205">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	lecture passing	50.0%	50.0%	project passing	50.0%	50.0%
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Recommended reading	<table border="1"> <tbody> <tr> <td data-bbox="456 1216 794 1249">Basic literature</td> <td colspan="2" data-bbox="799 1216 1469 1249"><a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a></td> </tr> <tr> <td data-bbox="456 1249 794 1283">Supplementary literature</td> <td colspan="2" data-bbox="799 1249 1469 1283"><a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a></td> </tr> <tr> <td data-bbox="456 1283 794 1440">eResources addresses</td> <td colspan="2" data-bbox="799 1283 1469 1440">           Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</a>            Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</a> </td> </tr> </tbody> </table>			Basic literature	<a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a>		Supplementary literature	<a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a>		eResources addresses	Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</a> Podstawy informatyki w medycynie, P, IMM, sem. 01, zimowy 21/22, (PG_00055732) - Moodle ID: 18365 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18365</a>	
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Supplementary literature	<a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a>											
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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											