GDAŃSK UNIVERSITY OF TECHNOLOGY

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 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	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. 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] 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	Lecture:
	MATLAB engineering tools to process data in medical measurements:
	files processing
	types of data and reading of data
	data visualization
	reading files obtained from medical measurement (txt, CSV, DICOM etc.)
	implementation of basic functions, loops and conditional expressions
	data matrix processing
	Project:
	Task1: processing of data obtained from biomechanical sensors
	Task 2: processing of data obtained from biomedical measurements
Prerequisites and co-requisites	Maths

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lecture passing	50.0%	50.0%
	project passing	50.0%	50.0%

Recommended reading	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 medycynie, W, IMM, zimowy 2023-2024 (PG_00055732) - Moodle ID: 32784 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32784

Example issues/ example questions/ tasks being completed	Create a code to read data from the electromyography measurements
	Create a code to process data obtained from the force sensor
Work placement	Not applicable

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