GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00073366		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
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	8.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Biomaterials Technology -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Beata Świeczko-Żurek	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	60.0	0.0	0.0	60

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=9049

Moodle ID: 9049 Urządzenia pomiarowe w zastosowaniach praktycznych https://enauczanie.pg.edu.pl/2025/course/view.php?id=9049

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	20.0	120.0	200

Subject objectives

The goal of the course is to provide knowledge about advanced measurement methods used in medicine. The student gets to know modern diagnostic techniques, imaging methods, and devices used in medical diagnostics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W12] identifies and interprets the main developmental trends and significant new achievements in the field of engineering and technical sciences and disciplines relevant to the course of study	The student interprets current development trends and new scientific and technical achievements related to the subject matter.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K7_W02] has structured and well-founded knowledge covering fundamental issues in the field of medical sciences allowing to design medical devices, rehabilitation systems and to formulate research procedures	The student uses knowledge from medical sciences to analyze technical solutions used in medical devices.	[SW3] Assessment of knowledge contained in written work and projects
[K7_U13] evaluates the feasibility and potential for utilizing new technical and technological achievements in accomplishing tasks characteristic for the field of study	The student is looking into the possibility of using new techniques in designing medical devices.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K7_W01] describes constructions of medical devices and their functioning on the base of knowledge related to the medical engineering	The student describes the structure, functions, and operating principles of selected medical devices.	[SW3] Assessment of knowledge contained in written work and projects
[K7_U15] evaluates the feasibility of advanced methods and tools for solving complex engineering tasks of a practical nature, characteristic of the field of study, and selects and applies appropriate methods and tools for this purpose	The student uses advanced methods and tools to solve practical problems related to designing medical devices.	[SU4] Assessment of ability to use methods and tools

Subject contents

Course content – laboratory

The course focuses on hands-on learning of advanced measurement and diagnostic technologies used in biomaterials engineering. Students gain knowledge in modern measurement techniques, imaging methods, and diagnostics.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
reports from the conducted research	80.0%	100.0%

Recommended reading

Basic literature	1. Ratner, B. D., Hoffman, A. S., Schoen, F. J., & Lemons, J.E. Biomaterials Science: An Introduction to Materials in Medicine. Academic Press, 2020.
Supplementary literature	1. Bronzino, J. D., & Peterson, D. R. The Biomedical Engineering Handbook. CRC Press, 2020.
eResources addresses	

Example issues/ example questions/ tasks being completed

1. Basic diagnostic technologies used in medical engineering?
2. What imaging methods are used in medical engineering?
3. Performing statistical analyses of diagnostic test results and their interpretation

Practical activites within the subject

Not applicable

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