GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Laboratory Diagnostic Systems, PG_00049343		
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Piotr Jasiński	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

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	30	3.0	42.0	75

Subject objectives

The aim of the course is to acquaint students with the basic methods of laboratory diagnostics

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W54] Knows and understands, to an advanced extent, selected aspects of biomedical diagnostics	The student will knowselected aspects of biomedical diagnosis in laboratory diagnostics systems	[SW1] Assessment of factual knowledge
[K6_W06] Knows and understands the basic processes occurring in the life cycle of devices, facilities and systems specific to a given field of study.	The student will know the measurement procedures used in laboratory diagnostics systems	[SW1] Assessment of factual knowledge

Subject contents

Clasifcation of contamination and measurement parameters. Organization of environmental monitoring services. Methods of environmental monitoring. Analyzers and meters of environmental monitoring. Impedance spectroscopy - definitions and equipment. Impedance spectroscopy - measurement of materials and electrochemical phenomena. Biosensors in analytical chemistry. Dry and wet tests. Basic quantities in medical analytics. Optical and fiber optics methods. Spectrophotometry. Mass spectroscopy. Electrochemical analyzers. Microsystems in analytical chemistry. Lab on chip.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory	50.0%	30.0%
Test	50.0%	70.0%

Recommended reading

Basic literature

Nowakowski A., Materiały pomocnicze do wykładu i laboratorium, Gdańsk 2010

Tomaszewski J., Diagnostyka Laboratoryjna, PZWL, 1993

Nałęcz M. [red.] Biocybernetyka i Inżynieria Biomedyczna, t. 2 Biopomiary, Exit, 2001

	Supplementary literature	J. S. Wilson, Sensor Technology Handbook, Elsevier, 2005 Y.B. Gianchandani, O. Tabata, H. Zappe, eds., Comprehensive Microsystems, , Elsevier, 2008
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	