GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Measurement methods in brain electrophysiology , PG_00062404		
Field of study	Biomedical Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
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	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Multimedia Systems -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Michał Kucewicz	
	Teachers	dr Michał Kucewicz	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	40.0	40.0	40.0	120
	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	120	0.0	0.0	120

Subject objectives	The aim of the course is to extend the student's knowledge of measurement methods in electrophysiology of neurons and apply it to a research project by the practical analysis of signals measured in patients with a diagnosis of epilepsy drug-resistant epilepsy patients participating in a study.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W02] Knows and understands, to an increased extent, selected laws of physics and physical phenomena, as well as methods and theories explaining the complex relationships between them, constituting advanced general knowledge in the field of technical sciences related to the field of study	the student will understand the physical phenomena enabling measurements of neurophysiological measurements and the operation and function of measuring electrodes	[SW3] Assessment of knowledge contained in written work and projects
[K7_U52] can examine tissues, materials and biomaterials used in biomedical engineering	Students will be able to analyse processes in brain tissue by performing electrophysiological tests	[SU5] Assessment of ability to present the results of task
[K7_W53] Knows and understands, to an increased extent, selected aspects of biomedical diagnostics.	The student understands the structure of electrodes, in particular the composition biomaterial composition of the device. The student will be familiar with the diagnostic application of electrophysiological measurements.	[SW3] Assessment of knowledge contained in written work and projects
[K7_W52] Knows and understands, to an increased extent, selected aspects of materials science and biomaterials, constituting general knowledge in the field of biomedical engineering	The student understands the structure of electrodes, in particular the composition biomaterial composition of the device. The student will be familiar with the diagnostic application of electrophysiological measurements.	[SW3] Assessment of knowledge contained in written work and projects
[K7_W06] Knows and understands, to an increased extent, the basic processes taking place in the life cycle of devices, facilities and technical systems.	the student will understand the physical phenomena enabling measurements of neurophysiological measurements and the operation and function of measuring electrodes	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Fundamentals of cerebral electrophysiology, in particular stereo EEG measurements.

Methods of practical signal analysis.

Theoretical report on a selected topic in the field of electrophysiology of the nervous system. Carrying out stereo-EEG signal analysis.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	50.0%	100.0%

Recommended reading

Basic literature	Intracranial EEG. A Guide for Cognitive Neuroscientists, Editor: Nikolai Axmacher
Supplementary literature	Electrophysiology Measurements for Studying Neural Interfaces, Mohammad Mohammadi Aria
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Theoretical report on a selected topic in the field of electrophysiology of the nervous system. Carrying out a stereo-EEG signal analysis.

Work placement

Not applicable