



## Subject card

Subject name and code	Artificial intelligence in biosignal analysis , PG_00062405						
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	0.0	120.0	0.0	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 broaden the student's knowledge of artificial intelligence methods applied in the analysis of biosignals and to apply it in a research project by performing eye-tracking and stereo-EEG signal classification.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W06] Knows and understands, to an increased extent, the basic processes taking place in the life cycle of devices, facilities and technical systems.		Student understands the origin and properties of biosignals, student knows the construction and parameters of the eye-tracking camera		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_U53] can apply advanced equipment used in biomedical diagnostics		The student, using advanced devices, is able to draw conclusions about the functioning of the human brain		[SU5] Assessment of ability to present the results of task		
	[K7_U52] can examine tissues, materials and biomaterials used in biomedical engineering		The student, using advanced devices, is able to draw conclusions about the functioning of the human brain		[SU5] Assessment of ability to present the results of task		
	[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		Student understands the origin and properties of biosignals, student knows the construction and parameters of the eye-tracking camera		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_W51] Knows and understands, to an increased extent, selected aspects of chemistry and biochemistry constituting general knowledge in the field of biomedical engineering.		Students will understand the dynamics of biochemical signals in the brain human brain and the relationships between them		[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Biosignals and their analysis using artificial intelligence.						
	Carrying out eye-tracking and stereo-EEG signal classification and compiling the results into a report						

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	Biosignal Processing: Fundamentals and Recent Applications with MATLAB, Authors: Stefan Bernhard, Andreas Brensing, Karl-Heinz Witte, ISBN: 9783110739596	
	Supplementary literature	Signal Processing for Neuroscientists, Wim van-Drongelen ISBN: 9780128104828	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	A classification of eye-tracking and stereo-EEG signals and compilation of the results in the form of a report		
Work placement	Not applicable		