



Subject card

Subject name and code	Generation and detection of magnetic fields, PG_00047940						
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marek Augustyniak				
	Teachers		dr inż. Marek Augustyniak				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		1.0		9.0	25
Subject objectives	Student knows basic definitions of magnetism and processes used for generation of static and alternative magnetic field. He recognises sources of magnetic fields and knows methods of field measurement. Student is able to understand principles of application of magnetic fields in medicine.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W08] Knows and understands, to an increased extent, the fundamental dilemmas of modern civilisation, the main development trends of scientific disciplines relevant to the field of education.		The student understands the place for magnetism in science and industry.		[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	1. Introduction to magnetism. 2. Magnetic field descriptors and their definitions. 3. Properties of dia-para and ferromagnetic materials. 4. Principles of methods of magnetic field generation. 5. Magnetic circuits. 6. Methods of magnetic field detection. 7. Application of magnetic fields in medicine.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	written egzam		50.0%		50.0%		
	participation		50.0%		50.0%		
Recommended reading	Basic literature		[1] Introduction to magnetism and magnetic materials; D. Jiles, Chapman and Hall, London, 1991				
	Supplementary literature		www.JMMM.com				
	eResources addresses						

Example issues/ example questions/ tasks being completed	Magnetic field descriptors and their definitions. Properties of dia-para and ferromagnetic materials. Methods of magnetic field generation. Magnetic circuits. Methods of magnetic field detection. Application of magnetic fields in medicine.
Work placement	Not applicable