

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Superconductivity and superconducting compounds, PG_00053757								
Field of study	Nanotechnology								
Date of commencement of studies	October 2023		Academic year of realisation of subject			2023/2024			
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			English			
Semester of study	2		ECTS credits			2.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department Of Solid Gdańskiej	nt Of Solid State Physics -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechr						ły Politechniki	
Name and surname	Subject supervisor		dr inż. Michał Winiarski						
of lecturer (lecturers)	Teachers		dr inż. Michał Winiarski						
Lesson types and methods	Lesson type	son type Lecture		Laboratory Project		t	Seminar	SUM	
of instruction	Number of study hours	30.0	0.0	0.0	0.0		0.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation i classes incluc	n didactic led in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30		2.0	.0			50	
Subject objectives	The aim of the course is to acquaint students with the basic issues of superconductivity. In particular, with materials showing the phenomenon of superconductivity.								
Learning outcomes	Course out	Subject outcome			Method of verification				
	K7_W02		Student knows the possibilities for application of superconductors in nanotechnology.			[SW1] Assessment of factual knowledge			
	K7_W09		Student correctly uses the terminology concerning superconductivity.			[SW1] Assessment of factual knowledge			
	K7_U10		Student is able to provide a comprehensive response to a question on superconductivity			[SU1] Assessment of task fulfilment			
	K7_W03		Student knows the current state of knowledge of superconducting materials.			[SW1] Assessment of factual knowledge			
Subject contents	pject contents Historical introduction								
Metallic state - band structure. Differences between metallic and superconducting state									
	i								
	Selected families of superconducting materials								
	Practical applications of superconductors								
	Superconducting nanodevices								

Prerequisites and co-requisites	Basic knowedge of synthesis methods in solid state chemistry. basic knoledge of crystallography.					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	final test	51.0%	100.0%			
Recommended reading	Basic literature	A.C. Rose-Innes, E.H. Rhoderick: <i>Introduction to Superconductivity</i> . Pergamon, 2015				
	Supplementary literature	Ch. Kittel "Introduction to solid state physics" 8th ed., Wiley, 2005				
	eResources addresses Podstawowe					
		http://hyperphysics.phy-astr.gsu.edu/hbase/Solids/scdis.html#c1 - Superconductivity in HyperPhysics textbook				
		Adresy na platformie eNauczanie:				
		Superconductivity and Superconducting Materials - 23/24 - Moodle ID: 37953				
		https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37953				
Example issues/ example questions/ tasks being completed	What is the superconducting critical temperature for YBa2Cu3O7.					
Work placement	Not applicable					

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