GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Low Temperature and Pressure Techniques, PG_00039761		
Field of study	Materials Engineering, Materials Engineering, Materials Engineering, Materials Engineering		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2022/2023
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	3	Language of instruction	Polish
Semester of study	6	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	prof. dr hab. inż. Bogusław Kusz	
	Teachers	prof. dr hab. inż. Bogusław Kusz	

Lesson types and methods of instruction

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

Gaining knowledge on the fundamentals of vacuum technology and kriotechnology

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U05	The student is able to independently acquire and evaluate the necessary knowledge	[SU1] Assessment of task fulfilment
K6_K01	The student is able to work in a team and, if necessary, use the knowledge of other experts.	[SK5] Assessment of ability to solve problems that arise in practice
K6_U02	The student knows the capabilities of individual measurement systems.	[SU1] Assessment of task fulfilment
K6_W04	The student knows the basic measuring instruments.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Laboratory(Lb): 0.Initial classes 1h 1.Low and high-pressure techniques. 2.Heat conductivity phenomena - conductivity, convection and radiation. 1h 3.Low temperature techniques: 1h 4. Seebeck phenomena thermocouple (2h) 5.Vacuum system and helium criostat: low pressure and low temperature. 3h 6. Measurement of specific resistivity and Meissner effect in Y-Ba-Cu-O superconductors (3h) 7. Properties of low temperatures mixtures (2h) 8. Measurement of specific resistivity of Cu in low temperatures (2h)

Prerequisites and co-requisites

Basic course of physics

Assessment methods and criteria

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

Recommended reading

Basic literature	- F.Pobell Matter at Low Temperatures Springer 1992 - J.Groszkowski Technika Wysokiej Próżni PWN 1978
Supplementary literature	Internet resources
eResources addresses	Uzupełniające Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1.How sorption pump works ? 2.Resistivity of metals in low temperature. 3.What is Peltiera effect ? 4.Seebeck effect.
Work placement	Not applicable