GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00059467		
Field of study	Nanotechnology		
Date of commencement of studies	February 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	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład ceramiki -> Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Sebastian Wachowski	
	Teachers	dr inż. Sebastian Wachowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

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	30	0.0	0.0	30

Subject objectives

Gaining knowledge of the fundamentals of physics of materials in an experimental point of view.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_K04	A student is able to plan and realize a scientific project related to nanotechnology.	[SK2] Assessment of progress of work
K7_K03	Students are able to divide and manage work in the group.	[SK1] Assessment of group work skills [SK3] Assessment of ability to organize work
K7_U07	Students can perform scientific work including synthesis, material characterization, data analysis etc.	[SU1] Assessment of task fulfilment
K7_W01	Students know a set of novel characterization methods in the field of nanotechnology and are able to use them in practice.	[SW1] Assessment of factual knowledge
K7_W06	Students gain expertise in laboratory methods. They know the safety rules in the lab and are able to work without supervision.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

In the laboratory, students will prepare the interesting materials and they will measure a properties of materials.

The measured properties will include the structural, microstructural and charge transport properties.

Students will analyze the obtained results and make a short seminar about the results they obtained.

Prerequisites and co-requisites

math knowledge as well as solid state physics principles.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>obecność, sprawozdania</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="2">Recommended reading</td><td>Basic literature</td><td>Introduction to solid state physics by Charles Kittel</td></tr>
<tr><td>Supplementary literature</td><td>The Basics of Crystallography and Diffraction, Ch. Hammond, Oxford University Press

Materials Science J.W. Morris, Jr, www.mse.berkeley.edu/groups/morris/MSE205/.../defects.pdf

Fundamentals of Solid State Engineering, link.springer.com/content/pdf/10.1007/0-306-47567-7_7.pdf

N.W. Ashcroft and N.D. Mermin, Solid State Physics,

Principles of the Theory of Solids, J.M. Ziman,

The Physics of Semiconductors

An Introduction Including Nanophysics and Applications, Marius Grundmann, Springer link

Introduction to Superconductivity

Edited by:A.C. Rose-Innes</td></tr>
<tr><td></td><td>eResources addresses</td><td>Uzupełniające
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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