



Subject card

Subject name and code	, PG_00058690						
Field of study	Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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			3.0		
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 hab. inż. Aleksandra Mielewczyk-Gryń					
	Teachers	Daniel Jaworski dr hab. inż. Aleksandra Mielewczyk-Gryń					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45	5.0		25.0		75
Subject objectives	The introduction to materials physics and chemistry .						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W01	has extended knowledge on physics of materials			[SW1] Assessment of factual knowledge		
	K7_K01	understands the need to learn whole his/her life			[SK4] Assessment of communication skills, including language correctness [SK2] Assessment of progress of work		
	K7_W05	know all of the basic methods of solid state physics and chemistry			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
	K7_U02	knows what direction he/she wants to work in the future			[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		

Subject contents	<p>Introduction</p> <p>Phonons and thermal properties</p> <p>Defect chemistry</p> <p>Electronic properties</p> <p>Semiconductors</p> <p>Transport</p> <p>Superconductivity</p> <p>Optical properties</p>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="451 779 798 817">Subject passing criteria</th> <th data-bbox="805 779 1141 817">Passing threshold</th> <th data-bbox="1149 779 1477 817">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 824 798 851">midterm/final test</td> <td data-bbox="805 824 1141 851">50.0%</td> <td data-bbox="1149 824 1477 851">70.0%</td> </tr> <tr> <td data-bbox="451 857 798 884">cwiczenia</td> <td data-bbox="805 857 1141 884">50.0%</td> <td data-bbox="1149 857 1477 884">30.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	midterm/final test	50.0%	70.0%	cwiczenia	50.0%	30.0%
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cwiczenia	50.0%	30.0%										
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Ch. Kittel "Introduction to solid state physics" 2. W. Ashcroft , N. D. Mermin "Solid state physics" 										
	Supplementary literature	H Ibach, H. Lüth - Solid State Physics										
	eResources addresses	Adresy na platformie eNauczenie: Fizykochemia Ciała Stałego 2023/2024 - Moodle ID: 35994 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=35994										
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> - Describe heat capacity in metals - Whats the difference between supercapacitor and ideal capacitor? - Glve the expression for Fermi energy at 0K 											
Work placement	Not applicable											