



Subject card

Subject name and code	, PG_00058690						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
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		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						
	Fizykochemia ciała stałego 2022/23 - Moodle ID: 28802 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28802						
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_U02		knows what direction he/she wants to work in the future		[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
	K7_W05		know all of the basic methods of solid state physics and chemistry		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	K7_K01		understands the need to learn whole his/her life		[SK2] Assessment of progress of work [SK4] Assessment of communication skills, including language correctness		
	K7_W01		has extended knowledge on physics of materials		[SW1] Assessment of factual knowledge		

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="451 777 794 817">Subject passing criteria</th> <th data-bbox="794 777 1137 817">Passing threshold</th> <th data-bbox="1137 777 1487 817">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 817 794 851">cwiczenia</td> <td data-bbox="794 817 1137 851">50.0%</td> <td data-bbox="1137 817 1487 851">30.0%</td> </tr> <tr> <td data-bbox="451 851 794 884">midterm/final test</td> <td data-bbox="794 851 1137 884">50.0%</td> <td data-bbox="1137 851 1487 884">70.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	cwiczenia	50.0%	30.0%	midterm/final test	50.0%	70.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>1. Ch. Kittel "Introduction to solid state physics"</p> <p>2. W. Ashcroft , N. D. Mermin "Solid state physics"</p> <p>H Ibach, H. Lüth - Solid State Physics</p>										
Example issues/ example questions/ tasks being completed	<p>- Describe heat capacity in metals</p> <p>- Whats the difference between supercapacitor and ideal capacitor?</p> <p>- Give the expression for Fermi energy at 0K</p>											
Work placement	Not applicable											