



## Subject card

Subject name and code	Physics of materials II, PG_00048740						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2021/2022		
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	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Aleksandra Mielewczyk-Gryń					
	Teachers	dr inż. Bogumiła Strzelecka 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	0.0	0.0	0.0	15.0	45
	E-learning hours included: 0.0						
Fizyka materiałów II - Moodle ID: 22233 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22233">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22233</a>							
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.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W01	has extended knowledge on physics of materials			[SW1] Assessment of factual knowledge		
	[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language	has the whole needed knowlegde for further solid state physics courses			[SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work		
	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_W05	know all of the basic methods of solid state physics			[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	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		

Subject contents	<p>Introduction</p> <p>Phonons and thermal properties</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	Subject passing criteria	Passing threshold	Percentage of the final grade
	midterm/final test	50.0%	70.0%
	seminar	50.0%	30.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Ch. Kittel "Introduction to solid state physics"</li> <li>2. W. Ashcroft , N. D. Mermin "Solid state physics"</li> </ol>	
	Supplementary literature	H Ibach, H. Lüth - Solid State Physics	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> <li>- Describe heat capacity in metals</li> <li>- Whats the difference between supercapacitor and ideal capacitor?</li> <li>- Glve the expression for Fermi energy at 0K</li> </ul>		
Work placement	Not applicable		