



Subject card

Subject name and code	Electronic and magnetic materials , PG_00057507						
Field of study	Nanotechnology						
Date of commencement of studies	February 2023		Academic year of realisation of subject		2022/2023		
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	1		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Zakład silnie skorelowanych układów elektronowych -> Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Tomasz Klimczuk				
	Teachers		prof. dr hab. inż. Tomasz Klimczuk				
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						
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		3.0		27.0	75
Subject objectives	The aim of the course is to familiarize students with the basic methods of synthesis of inorganic materials in the polycrystalline and crystalline form. Students will also learn about characterization basic methods of the crystal structure and physical properties.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_W02		The student is encouraged by the knowledge he has in the field of the selected nanotechnology department.		[SW1] Assessment of factual knowledge		
	K7_U07		The student knows how to apply the hard-gained knowledge to issues in the area of materials science.		[SU4] Assessment of ability to use methods and tools		
	K7_W03		The student can be proud of the knowledge about the current development directions in the field of materials science.		[SW1] Assessment of factual knowledge		
Subject contents	1. Thermal properties of materials. 2. Synthesis methods in solid state chemistry (polycrystalline and crystalline materials). 3. Basic physical properties - methods and data analysis. 4. Thermoelectric materials. 5. Superconductors.						
Prerequisites and co-requisites	Basic knowledge of crystallography and solid state physics or chemistry						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	ocena wystąpienia		60.0%		20.0%		
	ocena treści		60.0%		80.0%		

Recommended reading	Basic literature	<p>Mary Anne White Properties of Materials, Oxford University Press 1999;</p> <p>William D. Callister, Jr. Materials Science and Engineering an Introduction, 6th edition, John Wiley & Sons, Inc. 2003;</p>
	Supplementary literature	selected scientific papers (given by lecturer).
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Describe crystal growth methods of 2D dichalcogenides of 3d transition metals.	
Work placement	Not applicable	