



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	Mary Anne White Properties of Materials, Oxford University Press 1999; William D. Callister, Jr. Materials Science and Engineering an Introduction, 6th edition, John Wiley & Sons, Inc. 2003;
	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	