



Subject card

Subject name and code	Materials engineering methods in science and technology, PG_00028062						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2022/2023		
Education level	first-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	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			2.0		
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	15.0	0.0	0.0	0.0	15.0	30
	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	30		0.0		0.0	30
Subject objectives	The aim of a class is to present students the different applications of nanotechnology methods e.g. history or biology.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U09	has the ability to prepare oral presentations in Polish with the use of available tools and the knowledge of theoretical concepts			[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_U06	Is able to integrate the obtained information on the methods of materials engineering, interpret them, and draw conclusions as well as formulate and justify opinions			[SU2] Assessment of ability to analyse information		
	K6_W08	has basic knowledge of development trends in the use of materials engineering methods in other fields of science and technology			[SW1] Assessment of factual knowledge		
Subject contents	<ul style="list-style-type: none">• Calorimetry• Microscopy• Resonance methods• Spectroscopic methods• Ion scattering methods• Electrochemical methods						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Essay	51.0%	50.0%
	Test	51.0%	50.0%
Recommended reading	Basic literature	Experimental Methods in the Physical Sciences	
	Supplementary literature	scientific papers eg: J Biomol Tech . 2010 Dec; 21(4): 167193. Hyperfine Interactions 154: 159176, 2004 Proc Natl Acad Sci U S A . 2013 Apr 23; 110(17): 66516656	
	eResources addresses	Adresy na platformie eNauczanie: Metody inżynierii materiałowej w innych dziedzinach nauki i techniki 2022/23 - Moodle ID: 28803 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28803	
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> - Proteins denaturation analysis. - Microscopy in archeology. - photoelectric effect and it's applications 		
Work placement	Not applicable		