



## Subject card

Subject name and code	, PG_00039649						
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		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		English		
Semester of study	1		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Natalia Wójcik				
	Teachers		dr hab. inż. Natalia Wójcik				
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		5.0		50.0	100
Subject objectives	Learning about modern amorphous materials and technological issues related to their application.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_K01	The student knows the basic application of modern amorphous materials			[SK2] Assessment of progress of work		
	K7_W03	The student knows the theoretical basics science of amorphous materials.			[SW1] Assessment of factual knowledge		
Subject contents	• Glass around us • Preparation, conditions • Production methods • Basic properties of glass: electrical, thermal, mechanical, optical • Special glasses and glass-ceramic composites: bioglasses, oxynitride glasses, ferroelectrics, ferromagnetics, multiferroics, spin-glasses, nonlinear materials • Nanostructures in glass						
	Prerequisites and co-requisites						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Test and seminar		50.0%		100.0%		

Recommended reading	Basic literature	<ul style="list-style-type: none"> <li>• Introduction to Glass Science and Technology, James E. Shelby, The Royal Society of Chemistry 2005</li> <li>• Materials Science and Technology - Glasses and Amorphous Materials, Vol. 9, Volume Editor J. Zarzycki</li> </ul>
	Supplementary literature	N/A
	eResources addresses	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. The definition of glass</li> <li>2. Describe the method of glass-ceramics preparation</li> <li>3. What is bioglass and what properties should it show</li> </ol>	
Work placement	Not applicable	