



Subject card

Subject name and code	, PG_00058711						
Field of study	Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
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 Polish		
Semester of study	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Materiałów Funkcjonalnych -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Agnieszka Ossowska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	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	60		5.0		60.0	125
Subject objectives	The aim of the course is to acquire knowledge about technologies for producing ceramic biomaterials and technologies for producing sintered materials, ranging from classic production methods to the most modern techniques for obtaining them. Providing knowledge about acceptance testing methods and properties that manufactured biomaterials must meet.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K7_U04	The student is able to analyze the obtained research results, verify them and present them in the form of a report or presentation.	[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
	K7_W04	Has knowledge in the field of materials engineering and is able to determine the properties of ceramic materials.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
	K7_W05	The student knows how to solve engineering tasks ceramic biomaterials using many methods analytical, techniques and tools for description of the results.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	K7_K01	The student knows how to cooperate with members of the group above solving problems laboratory, as a leader and group member. It can inspire and other people, knows when to turn to the person saying bigger knowledge.	[SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills
K7_U03	The student is able to present the problem and properly plan research work using appropriately selected measurement methods.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject	
Subject contents	<p>Lecture: Characteristics of methods for obtaining ceramic materials. Powder metallurgy technology characteristics, advantages and disadvantages. Methods of obtaining scaffolds. Properties of sintered materials and possible applications. Technology of obtaining bioceramics. Dry and wet processes for obtaining ceramic materials. Project: Preparation of a presentation using databases and materials available at the Gdańsk University of Technology, regarding ceramic materials used in technology and medicine. Presentation of presentations related to bioceramic materials produced using various techniques, taking into account differences in structure and properties.</p>		
Prerequisites and co-requisites	Nie dotyczy		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	25.0%
		60.0%	25.0%
		60.0%	50.0%
Recommended reading	Basic literature	<p>1. Dobrzański L.A.: Podstawy nauki o materiałach i metaloznawstwo. Materiały inżynierskie i podstawy projektowania materiałowego. WNT. 2002.</p> <p>2. Ossowska A., Wytwarzanie, budowa i właściwości warstw tlenkowych uzyskanych na stopach tytanu do zastosowań biomedycznych, Wyd. Politechniki Gdańskiej, 2017.</p> <p>3. Błażewicz S. Stoch L.: Biomateriały. Biocybernetyka i Inżynieria Biomedyczna, tom 4.Exit, 2000.</p> <p>4. Świczko-Żurek B.: Biomateriały. Polit. Gdańska, Gdańsk, 2009.</p> <p>5. Zieliński A. i in., Nanotechnologia w medycynie i kosmetologii, Wyd. Politechniki Gdańskiej, Gdańsk, 2018.</p>	
	Supplementary literature	J. Marciniak, Biomateriały, Gliwice, Wydawnictwo Politechniki Śląskiej 2002.	
	eResources addresses	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable