

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00052093							
Field of study	Nanotechnology							
Date of commencement of studies	October 2022		Academic year of realisation of subject			2024/2025		
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	Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marek Chmielewski					
	Teachers		dr inż. Mateusz Cieślik					
		dr inż. Marek Chmielewski						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0		0.0	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		2.0		18.0		50
Subject objectives	The purpose of the course is the practical application of 3D prototyping systems used for the practical solution of engineering problems and issues. Ability to work on modern FDM printing systems.							

Learning outcomes	Course outcome	Subject outcome	Method of verification				
	K6_K04	Work in the laboratory in group consist with three students. Cooperation in order to achieve the intended results. Planning and allocation of functions and roles in the process of handling the measuring equipment and data acquisition.	[SK1] Assessment of group work skills				
	K6_U04	The student will learn additive manufacturing techniques, effectively use tools to create three-dimensional models. He/she is able to properly select the types of materials that can be effectively used for his/her project.	[SU4] Assessment of ability to use methods and tools				
	K6_W07	The student will learn various research techniques used in the field of structure research, chemical composition, atomic structure, The student will learn and classify physical phenomena used in the field of materials research and nanotechnology	[SW1] Assessment of factual knowledge				
	K6_U02	The student presents the seminar and critically analyze scientific works in the field of materials testing, carried out the review process and presenting it to the public before leading the group and other students. Publicly trying confirm and justify their conclusions.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject				
	K6_W09	The student will learn the operation and construction of measuring equipment used in the field of testing the properties and structure of materials. The student will learn the capabilities of various measurement techniques, independently discover and indicate the possibilities of their effective application in fields other than those realized during the laboratory.	[SW1] Assessment of factual knowledge				
Subject contents	Lecture : The content of the course is to comprehensively introduce or remind students of prototyping techniques based on 3D printing technologies. Within the scope of the subject, programs for rapid creation of simple and advanced 3D models will be presented. The possibilities of 3D prototyping in the laboratory provided for the realization of the subject will be presented and described. Learning how to configure and set parameters for 3D printing. Laboratory Based on the needs of the individual or indicated by the instructor, students will complete a project using 3D printing technology. For the purpose of the subject, it will be possible to apply reverse engineering techniques based on the use of 3D scanners.						
Prerequisites and co-requisites	Not required						
Assessment methods and criteria	Subject passing criteria	Passing threshold 80.0%	Percentage of the final grade 100.0%				
Recommended reading	Basic literature	Druk 3D. Praktyczny przewodnik po sprzęcie, oprogramowaniu i usługach. <u>Kloski Liza Wallach Kloski Nick</u> Wydawnictwo Helion. <u>https://www.prusa3d.com/pl/strona/podstawy-druku-3d-z-josefem- prusa_490/</u>					
	https://botland.com.pl/kursy-wideo/18296-kursy-modelowani fusion-360-i-modelowanie-3d-pod-druk-3d-pakiet-wersja-on- cd=19686871092&ad=&kd=&gad_source=1&gclid=Cj0KCQ NJPUmeYP0ORHN4vIxKpNr-0r034aAvNPEALw_wcB						
	Supplementary literature	Not reqiured					

eResources addresses	Adresy na platformie eNauczanie:			
	Nowoczesne techniki wytwarzania elementów urządzeń technologicznych - Moodle ID: 45351 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=45351			
3D scanner, extrapolation, texture creation				
3D printing materials.				
FDM printing technique				
Not applicable				
	eResources addresses 3D scanner, extrapolation, texture cr 3D printing materials. FDM printing technique Not applicable			

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