



Subject card

Subject name and code	, PG_00061788						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2023		Academic year of realisation of subject		2023/2024		
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	2		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marek Chmielewski				
	Teachers		dr inż. Marek Chmielewski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	30.0	0.0	75
	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	75		0.0		0.0	75
Subject objectives	The aim of the course is to familiarize the student with the possibilities of technical 3D prototyping from the level of using commercial and non-commercial software to create 3D models to the process of direct printing using 3D devices such as FDM/FFF and SLA.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_U01		The student is able to search effectively for relevant information from publicly available literature databases and other web resources. He/she is able to separate relevant and true information from inappropriate information, especially in the field of 3D prototyping techniques with a particular focus on adjacency techniques.		[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	K7_K01		In carrying out tasks related to the topics of laboratory student will know the correct methods of carrying out the experiment, will be able to realize and understand the need for multi-track analysis of the results. Properly provide calibration procedures, and effectively uses these results to determine the unknown parameters of the measured elements		[SK2] Assessment of progress of work [SK1] Assessment of group work skills		
	K7_W07		Students will analyze the impact of the development of technology and new scientific content on the environment, they will be able to determine the scope of safe use of advanced technical solutions. He or she can assess the importance of maintaining balance in the field of technological progress.		[SW1] Assessment of factual knowledge		

Subject contents	The content of the course is to comprehensively familiarise students with prototyping techniques based on 3D printing technologies. Within the scope of the subject, programmes for the rapid creation of simple and advanced 3D models will be presented. Work with commercial as well as free software is foreseen. The next task will be to familiarise students with 3D printing techniques, especially in terms of practical applications. The final stage of the course will be the realisation of a selected 3D project, from the level of the computer model to the final product.		
Prerequisites and co-requisites	not required		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project	80.0%	100.0%
Recommended reading	Basic literature	web resources https://3d.edu.pl/3-obowiazkowe-ksiazki-o-druku-3d/	
	Supplementary literature	not require	
	eResources addresses	Adresy na platformie eNauczanie: Prototypowanie 3D - Moodle ID: 33970 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33970	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		