



Subject card

Subject name and code	Computer aided design, PG_00052086						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
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	1	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Magnetycznych Właściwości Materiałów -> Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Augustyniak					
	Teachers	dr inż. Marek Augustyniak					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	30.0	0.0	60
	E-learning hours included: 0.0						
Komputerowe wspomaganie projektowania (jesień 2022 / MA) - Moodle ID: 25386 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25386							
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	7.0	58.0	125		
Subject objectives	<p>The class is supposed to guide students in practical skills related to the computer-aided design. The choice of tools is based on the desire to provide solutions as versatile as possible. In particular, the student shall be helped with:</p> <ul style="list-style-type: none"> - understanding and creating standard paper product documentation (AutoCAD and similar programs) - understanding the specifics of 3D design, based on at least one of the currently popular programs (Fusion) - application of engineering simulation methods, primarily based on the FEA (free Salome pre-processor, ANSYS computing system) 						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W05	The student knows the commands of AutoCAD; he/she is able to use software such as Fusion 360, Salome, Ansys.			[SW3] Assessment of knowledge contained in written work and projects		
	K7_U04	The student is capable of creating a technical documentation of simple products.			[SU1] Assessment of task fulfilment		

Subject contents	<p>Spreadsheet: revision of skills AutoCAD or equivalent program: interface basics, commands, 2D exercises. ANSYS or equivalent program: physics simulation of single parts (mechanics, heat transfer, optional electromagnetism) - comparison with analytical solutions and experiment, where possible SALOME + Calculix - free software for 3D modeling and FEM calculations FUSION 360 - a popular, intuitive 3D modeling program, with calculation modules and the option of designing printed circuit boards</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Student participation intensity	80.0%	50.0%
	Completing design tasks	70.0%	50.0%
Recommended reading	Basic literature	Software manuals (PDF, online training courses)	
	Supplementary literature	----	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>AutoCAD: Apartment Planning</p> <p>Fusion 360: Designing a Simple Part from Scratch</p> <p>Salome + Calculix: simple part vibration calculation; work with models from the GrabCAD portal</p> <p>ANSYS: prediction of the durability of the car towbar</p>		
Work placement	The acquired skills are directly applicable in industry.		