GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer aided design, PG_00052086
Field of study	Nanotechnology

Date of commencement of studies	October 2020	Academic year of realisation of subject	2022/2023
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	5	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						

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	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: - 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
	K6_W05	Not applicable.	[SW3] Assessment of knowledge contained in written work and projects
	K6_U03	The student knows the commands of AutoCAD; he/she is able to use software such as Fusion 360, Salome, Ansys.	[SU1] Assessment of task fulfilment
	K6_U07	The Student is capable of estimating effort and approximate cost of his/her design work.	[SU2] Assessment of ability to analyse information

Subject contents	Spreadsheet: revision of skillsAutoCAD 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 possibleSALOME + Calculix - free software for 3D modeling and FEM calculationsFUSION 360 - a popular, intuitive 3D modeling program, with calculation modules and the option of designing printed circuit boards		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Completing design tasks	70.0%	50.0%
	Student participation intensity	80.0%	50.0%
Recommended reading	Basic literature	Software manuals (PDF, online training courses)	
	Supplementary literature	----	
	eResources addresses	Podstawowe https://youtu.be/ZuGrzSHuYz4? list=PL0fZjEQc8oaMEkOGcNvueT8lAZvcoKuie - Example of Fusion 360 training courses https://knowledge.autodesk.com - Knowledge repository for Autodesk software, including AutoCAD Adresy na platformie eNauczanie: Komputerowe wspomaganie projektowania (jesień 2022 / MA) - Moodle ID: 25386 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25386	
Example issues/ example questions/ tasks being completed	AutoCAD: Appartment Planning Fusion 360: Designing a Simple Part from Scratch Salome + Calculix: simple part vibration calculation; work with models from the GrabCAD portal ANSYS: prediction of the durability of the car towbar		
Work placement	The acquired skills are directly applicable in industry.		