



## Subject card

Subject name and code	Virtual design of medical devices, PG_00057880						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group					
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			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Artur Olszewski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	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		0.0		0.0	30
Subject objectives	Students acquire the ability to analyze and optimize groups of structures in detail, with particular emphasis on the phenomena that are usually ignored in engineering models (e.g. contact phenomena, deformation of elements, stresses above the yield point of the material, etc.). By comparing the obtained results of advanced numerical analyzes with the results of calculations using engineering models, students have the opportunity to draw conclusions about the correctness of the assumptions made for the formulation of engineering models and their impact on the obtained results.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U08] He/she can formulate and verify hypotheses for simple engineering problems and research				[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
	[K7_K03] He/she can analyze and realize given tasks proposing entrepreneur and creative activities				[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice		
	[K7_U04] He/she can use programming-communicative techniques concerning to the scope of engineering tasks				[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
Subject contents	Students acquire the skill of a detailed analysis of technical structures with particular emphasis on phenomena that are usually ignored in engineering models (e.g. contact phenomena, deformation of elements, stresses above the yield point of the material, etc.). By comparing the obtained results of advanced numerical analyzes with the results of calculations using engineering models, students have the opportunity to: t draw conclusions about the correctness of the assumptions made for the formulation of engineering models and their impact on the obtained results. In principle, the subject is carried out entirely in the form of self-solving problems / issues by students, because they have relevant knowledge from the earlier stages of studies (as to the knowledge of relevant engineering models and the basics of numerical methods used). As part of the proposed course, students solve problem (design) tasks allowing to enrich the previously acquired knowledge about the functioning of machinery and equipment nodes.						
Prerequisites and co-requisites	Knowledge of 3D CAD programs (Inventor indicated). Fundamentals of machine construction.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Final project evaluation		56.0%		100.0%		
			0.0%		0.0%		
Recommended reading	Basic literature						

	Supplementary literature	.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	