

表 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Finite element method - applicatios, PG_00041526								
Field of study	Civil Engineering								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2023/2024			
Education level	second-cycle studies		Subject group			Optional subject group			
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	2		Language of instruction			English			
Semester of study	3		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Katedra Wytrzymałości Materiałów -> Faculty of Civil and Environmental Engineering								
Name and surname	Subject supervisor		dr inż. Bartosz Sobczyk						
of lecturer (lecturers)	Teachers		dr inż. Bartosz Sobczyk						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	Number of study hours	0.0	0.0	0.0	0.0		30.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30		5.0		40.0		75	
Subject objectives	Selected aspects of n	nodern applicat	tions of FEM in	civil engineerir	ng pract	tice			
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K7_U01] can evaluate and list any loads acting on constructions		The student is able to critically assess the load state adopted by the authors of the analyzed study.			[SU2] Assessment of ability to analyse information			
	[K7_W04] has knowledge on advanced strength of materials, modeling and optimisation of materials and constructions; has knowledge of fundamentals of Finite Element Method and general nonlinear analysis of engineering constructions and systems		The student is able to find common elements of his knowledge with the knowledge presented in the literature.			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects			
	[K7_U04] is able (using Finite Element Method), to define a calculation model and to perform advanced numerical analysis of complex constructions in: linear range and elementary nonlinear range, can criticaly evaluate the results of calculations.		The student is able to identify the tools necessary to solve advanced engineering problems, in particular, is able to choose numerical programs based on FEM.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools			
	[K7_U06] is able to choose proper tools (measuring, analytical or numerical) to solve engineering problems, to acquire, filtrate, proces and analyse data		The student is able to find the literature (scientific article, monograph, textbook) concerning the issue of interest to him.			[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task			
	[K7_W01] has knowledge of higher mathematics, physics and chemistry, which is a base of subjects, such as construction theory and advanced material technology		The student is able to analyze a specialist text concerning non- trivial problems in construction.			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	Modeling of advanced engineering structures - presentations based on journal papers. Remarks on commercial FEM codes. Students presentations of FEM analysis in MSc thesis.								

Prerequisites and co-requisites	BSP020 or equivalent BSP021 or equivalent BSP022 or equivalent BSD048 or equivalent					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Seminar work	60.0%	100.0%			
Recommended reading	Basic literature	 RAKOWSKI G., KACPRZYK Z.: Metoda elementów skonczonych w mechanice konstrukcji. Oficyna Wydawnicza Politechniki Warszawskie Warszawa 2005. KLEIBER M (red).: Komputerowe metody mechaniki cial stalych. Mechanika Techniczna t. XI. PWN, Warszawa 1995. DACKO M., BORKOWSKI W., DOBROCINSKI S., NIEZGODA T., WIECZOREK M.: Metoda elementów skonczonych w mechanice konstrukcji. Arkady Warszawa 1994. ZIENKIEWICZ O.C.: Metoda elementów skonczonych. Arkady 1972 lub nowsze wydania w jezyku angielskim. Selected scientific papers concerned with applications of FEM in practice 				
	Supplementary literature	nentary literature 1. CHRÓSCIELEWSKI J., MAKOWSKI J., PIETRASZKIEWICZ W.: Statyka i dynamika powlok wieloplatowych. Nieliniowa teoria i metoda elementów skonczonych. PAN IPPT, Biblioteka Mechaniki Stosowanej Serii A, monografie, Warszawa 2004. 2. KREJA I.: Mechanika Osrodków Ciaglych. Wydawnictwo CURE, Politechnika Gdanska, Gdansk 2003.				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	Present the coverage of the paper chosen for presentation, in the light of FEM applications					
Work placement	Not applicable					