



Subject card

Subject name and code	Introduction to the Calculus of Variation, PG_00072602						
Field of study	Technical Physics, Materials Engineering, Mathematics, Materials Engineering, Nanotechnology, Nanotechnology, Materials Engineering						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2026/2027		
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			Polish		
Semester of study	3	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Applied Mathematics -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Sergey Kryzhevich				
	Teachers		dr hab. Sergey Kryzhevich				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	eNauczenie source address: https://enauczenie.pg.edu.pl/2025/course/view.php?id=1124						
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	15	2.0		8.0		25
Subject objectives	The aim of the course is to familiarize students with selected methods of the calculus of variations and with deriving mathematical models in the form of differential equations.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods		Student has the necessary theoretical foundations, including methods of functional analysis			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects	
	[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member		Student is able to write down and solve the differential equations basing on a given variational problem.			[SU1] Assessment of task fulfillment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools	
	[K7_K101] acknowledges the importance of knowledge related to the field of study in solving cognitive and practical problems, critically assessing the information obtained		Student understands the main method on creating variational equations from physical problems.			[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness	

