



Subject card

Subject name and code	Mechanics II, PG_00055119						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study 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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Zakład Mechaniki Stosowanej i Biomechaniki -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Oleksii Nosko				
	Teachers		dr hab. inż. Oleksii Nosko				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	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		8.0		82.0	150
Subject objectives	The course provides students with basic knowledge of Classical Mechanics. Terms, assumptions, principles and methods of Kinetics are treated. The main emphasis is on the development of skills to efficiently schematise, solve and analyse typical problems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W04		Knowledge of mechanics, including the process of modeling mechanical systems of kinetics		[SW1] Assessment of factual knowledge		
	K6_U06		Ability to use mathematical and physical models to analyze the processes and phenomena occurring in mechanical devices in the field of mechanics and selected issues of strength of materials		[SU4] Assessment of ability to use methods and tools		
	K6_U01		Ability to obtain information from professional literature, databases and other resources necessary to solve engineering tasks; ability to integrate the obtained information and make their interpretation, as well as draw conclusions and present opinions with justification		[SU4] Assessment of ability to use methods and tools		
Subject contents	Kinetics. Kinetics of a particle. Newton's second law of motion. Linear and angular momentum. Impulse. Principle of impulse and momentum. Friction. Kinetics of particles. System of particles. Motion of the mass centre. Impact. Energy methods. Work of a force. Power. Kinetic energy. Principle of work and energy. Conservative forces. Potential energy. Principle of conservation of total mechanical energy. Rotation of a body about a fixed axis. Equation of rotational motion. Moment of inertia. Parallel-axis theorem. Plane motion. Motion of the mass centre of a body. Rotation of a body about its mass centre. Conservation principles. System of bodies. Generalised methods. Virtual displacement. Principle of virtual work. Dynamic equilibrium. DAlemberts principle.						
Prerequisites and co-requisites	Basics of elementary and linear algebra, geometry, trigonometry, vector calculus, differential calculus, integral calculus.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	50.0%	50.0%
	Practical classes	50.0%	50.0%
Recommended reading	Basic literature	F.P. Beer et al., Vector Mechanics for Engineers: Statics and Dynamics, McGraw Hill, 2012. E. Wittbrodt, S. Sawiak, Mechanika ogólna. Teoria i zadania, Wyd. PG, 2012.	
	Supplementary literature	R.D. Gregory, Classical Mechanics, Cambridge University Press, 2006. I.V. Meshchersky, Collection of Problems in Theoretical Mechanics, The Higher School, 1962. J. Nizioł, Metodyka rozwiązywania zadań z mechaniki, WNT, 2002. S. Sawiak, E. Wittbrodt, Mechanika. Wybrane zagadnienia. Teoria i zadania, Wyd. PG, 2007.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		