

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Technical Mechanics 1, PG_00049762								
Field of study	Power Engineering, Power Engineering, Power Engineering, Power Engineering, Power Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2020/2021			
Education level	first-cycle studies		Subject group			Obligatory subject group in the field of study			
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	1		Language of instruction			English			
Semester of study	2		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Mecha	ent of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology						Technology	
Name and surname	Subject supervisor		dr inż. Maciej Kahsin						
of lecturer (lecturers)	Teachers		dr inż. Maciej Kahsin						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	30.0	15.0	0.0	0.0		0.0	45	
	E-learning hours included: 0.0								
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13684 Adresy na platformie eNauczanie: Technical Mechanics 1, - Moodle ID: 13684 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13684								
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	45		5.0		25.0		75	
Subject objectives	The background in theoretical and technical mechanics (strength of materials) Formulation and solution of problems of mechanics of structural systems								
Learning outcomes	Course outcome		Subject outcome		Method of verification				
	K6_W04		The student recognizes the problem type in the strength problem domain, assumes a mathematical solution type and formulates relevant design criteria			[SW1] Assessment of factual knowledge			
	K6_K01		The student initiates knowledge acquisition of new methods, structural types and procedures in the light of professional applications and developing a professional background			[SK2] Assessment of progress of work			

Subject contents	 STATICS: Force projection on to an axis. Moment of a force about a point and an axis. Parallel shifting of a force, reduction of a set of forces. Equilibrium conditions and equations for a rigid body within plane and space systems. Mass and gravity centers of a set of particles, curves and solids. KINEMATICS: Kinematics of a particle, track of motion, velocity, acceleration, particle motion along a straight line, circular track, normal and tangential components of acceleration. Planar kinetics of a rigid body, instantaneous center of zero velocity and acceleration, planar mechanisms. Compound motion, absolute and relative motion analyses,. DYNAMICS: Dynamics of a particle, direct and inverse problems, differential equations of motion, integration of a planar motion analytical solutions, dAlembert principle, momentum and angular momentum conservation laws, energy conservation law, constrained motion. Dynamics of a set of particles, equations of motion of the mass center. Dynamics of continuous systems, planar motion of a rigid body, rotation about a fixed axis, moments of inertia, parallel-axis theorem 					
Prerequisites and co-requisites	Mathematics, physics					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Test - numerical problems	0.0%	40.0%			
	Test - theory	0.0%	40.0%			
	Activity, incl. presentations	0.0%	20.0%			
Recommended reading	Basic literature	Hibbeler R.C.: Engineering Mechanics Statics, Dynamics. Prentice Hall 2010. Hibbeler R.C.: Statics and mechanics of materials. Prentice Hall 2004				
	Supplementary literature	no items				
	eResources addresses	Technical Mechanics 1, - Moodle ID: 13684 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13684				
Example issues/ example questions/ tasks being completed	Compute constraint forces in a static system, reduce the force system to a point					
Work placement	Not applicable					