GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Technical Mechanics, PG_00051265						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2020/2021		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish no remarks		
Semester of study	2		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Tomasz Mikulski				
	Teachers		dr hab. inż. Tomasz Mikulski dr inż. Marek Skowronek				

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						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11452 Adresy na platformie eNauczanie:						

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	10.0	55.0	125

Subject objectives	The preliminaries in statics, kinematics and dynamics of structural systems

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W02] has a basic knowledge in physics, including technical mechanics, fluid mechanics, solid-state physics, optics and acoustics necessary to understand basic physical phenomena occurring in ocean technology	The student becomes acquainted with a domain of mechanical problems encountered in various branches of engineering	[SW1] Assessment of factual knowledge
	[K6_U02] can work individually and in a team, communicate through various techniques in professional environment and also record, analyse, and present the results of work, can estimate the time needed to complete a given task	The student identifies and analyses the problem concerning mechanical behaviour of structures	[SU1] Assessment of task fulfilment

Subject contents	STATICS. Vectors in 2D and 3D, moment of a force about a point and an axis. Reduction of force systems. Gravity centres. Support (constraint) reactions in bar systems and 2D systems. Cross-sectional forces in beams and trusses. Friction - sliding friction, belt friction. KINEMATICS. Planar motion of a particle, circular and elliptical motion, particle motion in Cartesian and natural coordinates., path determination based on initial conditions. Rotations, centre of rotation. Rotation of a solid vs linear motion of its point, compound motion, rolling resistance. DYNAMICS. Work and energy, conservation laws, momentum , force impulse, time-variant dynamic problems. Solid dynamics, mass moments of inertia

Prerequisites and co-requisites	mathematics, physics (mechanics)		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test - kinematics and dynamics	50.0%	40.0%
	test - statics	50.0%	60.0%

Recommended reading	Basic literature	E. Wittbrodt, S. Sawiak Theoretical mechanics - theory and examples (in Polish) GUT publishing house 2017

	Supplementary literature	does not concern
	eResources addresses	
Example issues/ example questions/ tasks being completed	Determine cross-sectional forces in a loaded beam Determine axial forces in a loaded truss Classify dynamic problems in engineering	
Work placement	Not applicable	