



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 Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Maciej Kahsin					
	Teachers	dr inż. Maciej Kahsin					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	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 eNauzanie: 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	<p>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.</p> <p>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,.</p> <p>DYNAMICS: Dynamics of a particle, direct and inverse problems, differential equations of motion, integration of a planar motion analytical solutions, d'Alembert 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</p>														
Prerequisites and co-requisites	Mathematics, physics														
Assessment methods and criteria	<table border="1" data-bbox="448 589 1489 732"> <thead> <tr> <th data-bbox="448 589 796 629">Subject passing criteria</th> <th data-bbox="796 589 1141 629">Passing threshold</th> <th data-bbox="1141 589 1489 629">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 629 796 663">Test - numerical problems</td> <td data-bbox="796 629 1141 663">0.0%</td> <td data-bbox="1141 629 1489 663">40.0%</td> </tr> <tr> <td data-bbox="448 663 796 696">Test - theory</td> <td data-bbox="796 663 1141 696">0.0%</td> <td data-bbox="1141 663 1489 696">40.0%</td> </tr> <tr> <td data-bbox="448 696 796 732">Activity, incl. presentations</td> <td data-bbox="796 696 1141 732">0.0%</td> <td data-bbox="1141 696 1489 732">20.0%</td> </tr> </tbody> </table>			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%
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Test - numerical problems	0.0%	40.0%													
Test - theory	0.0%	40.0%													
Activity, incl. presentations	0.0%	20.0%													
Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>Hibbeler R.C.: Engineering Mechanics Statics, Dynamics. Prentice Hall 2010.</p> <p>Hibbeler R.C.: Statics and mechanics of materials. Prentice Hall 2004</p> <p>no items</p> <p>Technical Mechanics 1, - Moodle ID: 13684 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=13684</p>													
Example issues/ example questions/ tasks being completed	<p>Compute constraint forces in a static system,</p> <p>reduce the force system to a point</p>														
Work placement	Not applicable														