



## Subject card

Subject name and code	Technical Mechanics 2, PG_00049753						
Field of study	Power Engineering, Power Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
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		English		
Semester of study	3		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Theory and Ship Design -> 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						
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		10.0		70.0	125
Subject objectives	The aims of lecture is to provide basic knowledge of strength of materials and its exploitation in assessment of structural stress and deformation.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W04] has structured knowledge of mechanics, including the issues of material strength and general principles of shaping structures, necessary to conduct basic strength analyzes and design simple mechanical or construction systems for power industry or environmental engineering; knows the basics of machine construction and the most commonly used construction and operating materials	Student is able to design simple one-dimensional structures.	[SW1] Assessment of factual knowledge
	[K6_U01] can obtain information from literature and other sources, organize, interpret it and draw and formulate conclusions; has the ability to self-educate, interprets the results of completed engineering tasks, is able to design simple energy systems and their systems		
	[K6_W01] has basic knowledge of mathematics necessary to describe the phenomena related to the processes of energy conversion and transfer; uses information technology to solve mathematical problems		
	[K6_W16] has an elementary knowledge about energy and environmental construction including building materials, their strength, construction mechanics and building physics, moisture migration in buildings, heat transfer through building partitions, has a basic knowledge of marine and inland hydrotechnical structures; has knowledge of the hydraulic and hydrological conditions of designing facilities and building structures, photogrammetry, remote sensing, hydrography, and spatial analysis.		
Subject contents	1) Introduction, 2) Stress-strain relations, physical interpretation, 3) Axial loading of rods, 4) Moments of inertia, 5) Bending of beams, 6) Beam's line of deflection, 7) Shearing, 8) Torsion, 9) Complex stress – yield criterion, 10) linear buckling of column.		
Prerequisites and co-requisites	Technical Mechanics 2		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	50.0%	50.0%
	Tests	50.0%	50.0%
Recommended reading	Basic literature	William Nash: Strength of Materials (any edition)	
	Supplementary literature	.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1) Define stress and elongation of axially loaded rod, 2) Find principal moment of inertia, 3) Derive formula for line of beam's deflection, 4) Calculate reduces stress.		
Work placement	Not applicable		