GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Strength of Materials, PG_00058782
Field of study	Environmental Engineering

Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam

Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Violetta Konopińska-Zmysłowska
	Teachers	dr inż. Magdalena Oziębło
		dr hab. inż. Violetta Konopińska-Zmysłowska
		mgr inż. Milena Drozdowska

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	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	7.0	48.0	100

Subject objectives	Student is able to calculate internal forces for simple model of engineering structures and use them to developed stresses in investigated model. Student has knowledge of theoretical basis of dimensioning.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W08] has elementary knowledge of construction: including building materials, their strength, construction mechanics and building physics, moisture migration in buildings, heat transfer through building partitions	Student is able to obtain stress function of beams cross section. Student has basic knowledge of dimensioning of simple structures.	[SW1] Assessment of factual knowledge
	[K6_W02] has knowledge of physics, including mechanics, thermodynamics, optics, electricity and magnetism, nuclear physics and solid state physics, including knowledge necessary to: 1) understand the basic physical phenomena related to material durability, fluid mechanics and hydraulics, building physics, geodetic measurements ; 2) understanding the principles of operation of basic electrical devices and systems; 3) solving project tasks of the sanitary industry;	Student has basic knowledge of simple engineering structures. Student knows basic types of loads of structures and is able to prepare static schemes of basic structures.	[SW1] Assessment of factual knowledge

Subject contents	Strength of materials postulates. Three dimensional stress state. Plane stress state. Axial tension and compression. Inertia moments. Simple bending. Unsymmetrical bending. Eccentric compression and tension. Core of cross section. Bending line of beam Euler method. Bending line of beam Mohr method. Stability. Free torsion.
Prerequisites and co-requisites	Rudiments of vector algebra and analysis, differential and integral calculus.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam	60.0%	100.0%

Recommended reading	Basic literature	Gere J.M., Timoshenko S.: *Mechanics of Materials*, PWS-Kent Publishing Company, Boston, 1984
	Supplementary literature	Willems N., Easley T.J., Rolfe S.T.: Strength of Materials, McGraw-Hill Book Company, 1981
	eResources addresses	Adresy na platformie eNauczanie: Mechanika Ogólna i Wytrzymałość Materiałów rok 2024 Kierunek Inżynieria Środowiska - Moodle ID: 36383 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36383

Example issues/ example questions/ tasks being completed	Calculate the shortening of the compressed column. Determine the stresses in the tension rod. Calculate extreme stresses of simple beam. Calculate the bending line of simple beam.

Work placement	Not applicable

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