



## Subject card

Subject name and code	Mechanics and Strength of Materials II, PG_00043534						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2021/2022		
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		Polish		
Semester of study	3		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Violetta Konopińska-Zmysłowska				
	Teachers		dr inż. Magdalena Oziębło  mgr inż. Łukasz Żmuda-Trzebiatowski  dr inż. Violetta Konopińska-Zmysłowska				
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						
	Adresy na platformie eNauczanie: Mechanika i Wytrzymałość Materiałów rok 2021 - Moodle ID: 12039 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039</a>						
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		4.0		52.0	101
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.				
	[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.				

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
	Midterm colloquiums	60.0%	100.0%
Recommended reading	Basic literature	Gere J.M., Timoshenko S.: <i>Mechanics of Materials</i> , PWS-Kent Publishing Company, Boston, 1984	
	Supplementary literature	Willems N., Easley T.J., Rolfe S.T.: <i>Strength of Materials</i> , McGraw-Hill Book Company, 1981	
	eResources addresses	Mechanika i Wytrzymałość Materiałów rok 2021 - Moodle ID: 12039 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039</a>	
Example issues/ example questions/ tasks being completed	Calculate extreme stresses of simple beam.  Calculate the bending line of simple beam.		
Work placement	Not applicable		