



Subject card

Subject name and code	Mechanics and Strength of Materials I, PG_00043524						
Field of study	Environmental 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 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
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 hab. inż. Beata Zima dr inż. Magdalena Oziębło dr inż. Violetta Konopińska-Zmysłowska					
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						
Adresy na platformie eNauczanie: Mechanika i Wytrzymałość Materiałów rok 2021 - Moodle ID: 12039 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039							
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		40.0	89
Subject objectives	Student is able to recognize kinds of structures with respect to theoretical model and construct schemes of statically determined systems. Student is able to write equilibrium equations and calculate reaction forces and internal forces.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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. Student is able to calculate reaction forces and internal forces for statically determinate beams and frames.	[SW1] Assessment of factual knowledge
	[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 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. Student is able to calculate reaction forces and internal forces for statically determinate beams and frames.	[SW1] Assessment of factual knowledge
Subject contents	Statics principle, basic definitions, equilibrium equations, reactions. Simple beams, hinged beams. Frames, three hinged frames. Trusses. Strength of materials postulates. Three dimensional stress state.		
Prerequisites and co-requisites	Rudiments of vector algebra and analysis, differential 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	Konopińska-Zmysłowska V., Pestka (Mleczek) A., Oziębło M., Tomaszewska A.: <i>Wybrane problemy mechaniki układów prętowych, zbiór zadań</i> , Wydawnictwo Politechniki Gdańskiej 2016, 2017, 2018. McGill D.J.: <i>Engineering Mechanics</i> , PWS Publishers, Boston, 1985	
	Supplementary literature	Seely F.B., Ensign N.E., Jones P.G.: <i>Analytical Mechanics for Engineering</i> , Wiley, New York, 1958	
	eResources addresses	Mechanika i Wytrzymałość Materiałów rok 2021 - Moodle ID: 12039 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039	
Example issues/ example questions/ tasks being completed	Prepare the axial force, shear and moment diagrams for the given statically determinate structure.		
Work placement	Not applicable		