GDAŃSK UNIVERSITY OF TECHNOLOGY

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.

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[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;</td><td>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.</td><td>[SW1] Assessment of factual knowledge</td></tr>
<tr><td>[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</td><td>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.</td><td>[SW1] Assessment of factual knowledge</td></tr>
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<tr><td>Subject contents</td><td>Statics principle, basic definitions, equilibrium equations, reactions. Simple beams, hinged beams. Frames, three hinged frames. Trusses. Strength of materials postulates. Three dimensional stress state.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Rudiments of vector algebra and analysis, differential calculus.</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Midterm colloquiums</td><td>60.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Konopińska-Zmysłowska V., Pestka (Mleczek) A., Oziębło M., Tomaszewska A.: Wybrane problemy mechaniki układów prętowych, zbiór zadań, Wydawnictwo Politechniki Gdańskiej 2016, 2017, 2018.

McGill D.J.: Engineering Mechanics, PWS Publishers, Boston, 1985</td></tr>
<tr><td>Supplementary literature</td><td>Seely F.B., Ensign N.E., Jones P.G.: Analytical Mechanics for Engineering, Wiley, New York, 1958</td></tr>
<tr><td>eResources addresses</td><td>Mechanika i Wytrzymałość Materiałów rok 2021 - Moodle ID: 12039
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12039</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Prepare the axial force, shear and moment diagrams for the given statically determinate structure.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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