GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00069433		
Field of study	Mechanika materiałów		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish non
Semester of study	7	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Ferenc	
	Teachers	dr inż. Tomasz Ferenc	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	5.0	0.0	0.0	0.0	20

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 2209 Mechanika materiałów Niestacjonarne
https://enauczanie.pg.edu.pl/2025/course/view.php?id=2209

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	20	3.0	27.0	50

Subject objectives

Understanding the elements of plasticity theory and plastic body models. Determining the influence of time and environment on the strength properties of materials. Discussing the concepts of creep and relaxation. Discussing fracture. Understanding materials such as composites and auxetics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K01] Is aware of the key aspects of professional, ethical and social responsibility related to management, business operation, decision making and opinion formulation in civil engineering.	The student has knowledge of professional, ethical and social responsibility related to activities in the construction industry	[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce [SK3] Ocena umiejętności organizacji pracy
[K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).	The student has theoretical and practical knowledge of materials used in the construction industry, understands their properties, and is able to determine them.	[SW1] Ocena wiedzy faktograficznej
[K6_U06] Conduct engineering activities in civil engineering subject area, using and applying practical knowledge and understanding of materials, equipment and tools, processes and technologies.	The student solves design tasks and problems. He or she is able to prepare a report on the activities performed, such as calculations or design tasks.	[SU1] Ocena realizacji zadania
[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment	The student has knowledge of the impact of materials used in the investment process on the environment	[SW1] Ocena wiedzy faktograficznej
[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint	The student is able to design building structures made of various building materials, knows their properties and impact on the natural environment.	[SU1] Ocena realizacji zadania

Subject contents

Course content – lecture
Material constants, plastic body models

Elements of rheology - creep, relaxation, fatigue

Fracture

Composites

Auxetics

Course content – exercises
Experimental study of the properties of materials

Prerequisites and co-requisites

Basic knowledge of:

- structural mechanics

- strength of materials

- experimental methods in the strength of materials

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project	60.0%	40.0%
test	60.0%	60.0%

Recommended reading	Basic literature	Bielewicz E.: Wytrzymałość materiałów. Politechnika Gdańska, Gdańsk 1968, 1972, 1977, 1980, 1984, 2001, 2006. Dyląg Z., Jakubowicz A., Orłoś Z.: Wytrzymałość materiałów, tom I, Wydawnictwa Naukowo-Techniczne, 2003. Dyląg Z., Jakubowicz A., Orłoś Z.: Wytrzymałość materiałów, tom II, Wydawnictwa Naukowo-Techniczne, 2003. Chróścielewski J.: Materiały pomocnicze do wykładu z Mechaniki Materiałów (na portalu eNauczanie).
	Supplementary literature	Jastrzębski P., Mutermilch J., Orłowski W.: Wytrzymałość materiałów. Arkady, Warszawa 1974.
	eResources addresses	
Example issues/ example questions/ tasks being completed	A design task involving the design, production and testing of a sample made of a selected material	
Practical activites within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.