GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Environmental physics laboratory, PG_00037302		
Field of study	Technical Physics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group 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	4	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Atomic, Molecular and Optical Physics -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

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	30	2.0	18.0	50

Subject objectives

The aim of the course is to acquaint a student with selected physical processes in environment and acquisition of skills in the field measurements.

By participating in the laboratory and field classes the student acquires skills of specialist measuring instruments.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W08] has knowledge of planning and conducting physical experiments, and critical analysis of its results	Student is capable of planning and carrying out the experiment in the field	[SW1] Assessment of factual knowledge
[K6_W07] has knowledge of the construction and operation of physical instruments, measurement and research equipment	The student learns the principles of operation of theodolite, leveling agent, sextant, magnetometer, ionizing radiation detector and other measuring devices	[SW1] Assessment of factual knowledge
[K6_U04] plans and conduct experiments, critically analyzes their results, draw conclusions and forms opinions, has laboratory work experience	Is able to plan and carry out environmental measurements of physical quantities using the corresponding instruments.	[SU1] Assessment of task fulfilment

Subject contents

Sun (construction, nuclear fusion reactions, chemical composition, interaction with the Earth)
Processes and physical effects associated with the impact of the Sun-Earth
Earth (shape and structure of the Earth, physical models used to describe the structure of the Earth, isostasy, seismology, seismic waves)
The winds in the atmosphere

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td></td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Boeker E., van Grondelle R., (2002) Fizyka środowiska. PWN, Warszawa.

Sellers W.D., (1965) Physical Climatology. University of Chicago Press, Chicago.

Stacey F.D., (1992) Physics of the Earth. Brookfield Press, Kenmore, Aust</td></tr>
<tr><td>Supplementary literature</td><td>1. W. Kosiński, ”Geodezja”, Wydawnictwo Naukowe PWN, Warszawa 2010.

2. J. Rogowski, M. Kłęk, Skrypt - Geodezja wyższa i astronomia geodezyjna, Uczelnia Warszawska im. Marii Skłodowskiej-Curie, Warszawa, 2009.

3. M. Barlik, A.Pachuta, ”Geodezja fizyczna i grawimetria geodezyjna. Teoria i praktyka” , Politechnika Warszawska, 2007.

4. Instrukcja techniczna G-4, ”Pomiary sytuacyjne i wysokościowe”, Wydanie Trzecie, Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 24 marca 1999r. (Dz. U. Nr 30, poz. 297) Wykaz standardów technicznych - poz. 7, PWN, Warszawa 2001.

5. Norma branżowa BN-78/8770-07.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Working with a precision laser leveling - determination of the amount of selected control points (field measurements)
Calculating the azimuth of the coordinates and work with precision electronic theodolite - determination of coordinates based on field measurements
Gaining practical skills in the use of sextant, learning methods for determining the geographical position using the position of the sun.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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