



Subject card

Subject name and code	Meteorology, PG_00058754						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2026/2027	
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				2.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Faculty Office Faculty of Civil and Environmental Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Dariusz Gąsiorowski					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	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	5.0	20.0	55		
Subject objectives	Understanding a basic knowledge in the field of meteorology at the level necessary for the environmental engineering specialist. Understanding of basic concepts related to the composition and properties of the atmosphere. Understanding of basic physical processes taking place in the atmosphere, such as the circulation of heat and humidity in the atmosphere, water's changes of state, moisture and cloud formation, precipitation formation, general atmosphere circulation and local circulation. Acquiring basic skills in the field of reading and observing meteorological elements.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W12	Student masters the basic knowledge in the field of meteorology at the level necessary for a specialist in environmental engineering			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K6_U15] can make interpretations of measured meteorological parameters, define basic elements characterizing the weather and climate	Student is able to use data sets in the field of meteorology and climatology to analyze environmental engineering problems.			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
	[K6_W01] has knowledge in the field of mathematics, including: linear algebra, mathematical analysis and elements of mathematical statistics, probability theory, applications of mathematics, including mathematical methods and numerical methods, necessary for: 1) description and analysis of hydrological phenomena; 2) description and analysis of meteorological phenomena; 3) solving project tasks of the sanitary industry;	Student is able to carry out calculations related to the determination of basic meteorological parameters.			[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Course content – lecture</p> <p>Subject, development and tasks of meteorology. The weather and its typical elements. Measurements and meteorological observations. Atmosphere. The chemical composition and vertical structure of the atmosphere. Water and atmospheric aerosol. The quantities that determine the physical state of the atmosphere. The importance of the shape and motion of the Earth in the physical processes taking place in the atmosphere and on the surface of the Earth. Radiation of the Sun, Earth and atmosphere. Processes of absorbing, diffusing and reflecting radiation in the atmosphere. Thermal balance of the atmosphere and the Earth. Adiabatic processes, vertical temperature gradient and vertical balance of the atmosphere. Water in the atmosphere. The water vapor in the atmosphere. Condensation of water vapor. Conditions for the creation of particular types of clouds. Fogs and atmospheric precipitation. Air pressure. Vertical and horizontal pressure gradient. Typical barometric systems. Atmosphere dynamics. Geostrophic and gradient wind. Global atmosphere circulation. Local winds - breeze and fen. Westerlies and monsoons. Extreme phenomena: storms, tornadoes and hurricanes. Air masses, their types, characteristics. Atmospheric fronts - classification, properties, types of weather accompanying the passage of fronts. The formation and development of low- and high-pressure systems. The main causes of weather changes. Methods of meteorological forecasting.</p>														
Prerequisites and co-requisites	Knowledge in mathematics, physics.														
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="453 530 794 564">Subject passing criteria</th> <th data-bbox="799 530 1141 564">Passing threshold</th> <th data-bbox="1145 530 1473 564">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="453 571 794 600">Lecture test</td> <td data-bbox="799 571 1141 600">50.0%</td> <td data-bbox="1145 571 1473 600">20.0%</td> </tr> <tr> <td data-bbox="453 607 794 636">Homework</td> <td data-bbox="799 607 1141 636">50.0%</td> <td data-bbox="1145 607 1473 636">60.0%</td> </tr> <tr> <td data-bbox="453 642 794 672">Tutorial test</td> <td data-bbox="799 642 1141 672">50.0%</td> <td data-bbox="1145 642 1473 672">20.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Lecture test	50.0%	20.0%	Homework	50.0%	60.0%	Tutorial test	50.0%	20.0%
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Recommended reading	Basic literature	1. Lutgens F. K. and Tarbuck E. J.: The Atmosphere. Prentice Hall, New Jersey 2004.													
	Supplementary literature	1. Holton J. R.: An Introduction to Dynamic Meteorology. Elsevier, Amsterdam 2004.													
	eResources addresses														
Example issues/ example questions/ tasks being completed															
Practical activities within the subject	Not applicable														

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