



Subject card

Subject name and code	SCIENTIFIC APPROACH TO CLIMATE CHANGE, PG_00064333						
Field of study	Chemical Technology						
Date of commencement of studies	February 2025	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Optional subject group Specialty 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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Energy Conversion and Storage -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Anna Dettlaff				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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 provide students with a comprehensive understanding of the scientific aspects involved in climate change issues.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U03] designs innovative technological solutions for obtaining useful goods based on the state of the knowledge in accordance with the latest scientific literature		The student has advanced knowledge of the impact of human activities on the aggravation of the greenhouse effect and is able to apply solutions to mitigate them.		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W06] integrates knowledge from different disciplines, principles of intellectual property protection and patent law, relevant for appropriate interpretation and application in scientific, sustainable economic activities		Students will be able to search, select and critically analyse available sources of information on climate change and interpret them creatively.		[SW1] Assessment of factual knowledge		
	[K7_K02] understands the non-technical aspects and implications of graduate activity, including the impact on the environment		The student is aware of the environmental, social and economic consequences of climate change and understands the need to design technologies in accordance with sustainable development principles.		[SK1] Assessment of group work skills		

Subject contents	<p>LECTURE</p> <ol style="list-style-type: none"> 1. Concept of the greenhouse effect. Earth's energy balance. Solar radiation and its laws. 2. Scientific methods for assessing and monitoring climate change (homogenisation of temperature data, ocean temperature measurements, palaeoclimatology). 3. Historical and current climate change. 4. Carbon cycle in nature: fast and slow carbon cycle (carbon thermostat, inorganic carbon in the oceans). 5. Mechanisms and feedbacks controlling climate change 6. Natural and anthropogenic causes of climate change. Impact of technological development on climate. 7. Consequences of climate change on the environment. 8. Scenarios of changes in temperature, sea level, precipitation. Climate models. Reports. <p>PROJECT</p> <p>Tackling climate change. Climate myths. Report of the Intergovernmental Panel on Climate Change.</p>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 669 794 698">Subject passing criteria</th> <th data-bbox="799 669 1137 698">Passing threshold</th> <th data-bbox="1142 669 1485 698">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 705 794 734">Project</td> <td data-bbox="799 705 1137 734">40.0%</td> <td data-bbox="1142 705 1485 734">40.0%</td> </tr> <tr> <td data-bbox="456 741 794 770">Test</td> <td data-bbox="799 741 1137 770">60.0%</td> <td data-bbox="1142 741 1485 770">60.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Project	40.0%	40.0%	Test	60.0%	60.0%
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Project	40.0%	40.0%										
Test	60.0%	60.0%										
Recommended reading	Basic literature	<p>Klugmann-Radziemska E., Lewandowski W., Wilamowska-Zawłocka M., Dettlaff A., Januszewicz K., Ryms M., Kuczyńska-Łażewska A., Energetyka i ochrona środowiska. Generowanie i magazynowanie energii. Odpady energetyczne. Analiza cyklu życia, PWN, 2023</p> <p>Popkiewicz M., Kardaś A., Malinowski S., Nauka o Klimacie, Wydawnictwo Nieoczywiste, 2021</p>										
	Supplementary literature	<p>M. Budziszewska, A. Kardaś, Z. Bohdanowicz, Klimatyczne ABC. Interdyscyplinarne podstawy współczesnej wiedzy o zmianie klimatu, Wydawnictwa Uniwersytetu Warszawskiego, 2023</p>										
	eResources addresses	<p>Uzupełniające Adresy na platformie eNauczanie:</p>										
Example issues/ example questions/ tasks being completed	<p>How can the study of elemental isotopes give information about past climate? What feedbacks do you know that control the Earth's climate? What are Milanković cycles? What do they influence?</p>											
Work placement	Not applicable											

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