

SDAŃSK UNIVERSITY 的 OF TECHNOLOGY

Subject card

| , PG_00057778 | | | | | | | |
|--|---|---|---|---|---|---|---|
| Green Technologies | | | | | | | |
| October 2022 | | Academic year of realisation of subject | | | 2023/2024 | | |
| first-cycle studies | | Subject group | | | Optional subject group Subject group related to scientific research in the field of study | | |
| Full-time studies | | Mode of de | livery | | at the | university | |
| 2 | | - | | | English | | |
| 3 | | ECTS credits | | | 5.0 | | |
| general academic profile | | | | | exam | | |
| Department of Analytical Chemistry -> Faculty of Chemistry | | | | | | | |
| | | | | | | | |
| Teachers | | | | | | | |
| Lesson type | Lecture | Tutorial | Laboratory | Projec | t | Seminar | SUM |
| Number of study hours | 30.0 | 0.0 | 30.0 | 0.0 | | 0.0 | 60 |
| - | | | | | | | |
| Learning activity | | | Participation in consultation hours | | Self-study | | SUM |
| Number of study hours | 60 | 10.0 | | | 55.0 | | 125 |
| chemistry of the atmo elements in the enviro | sphere, water onment. Familia | and soil. Prese | ntation of geo | chemica | l cycles | of the most i | mportant |
| Course outcome | | Subject outcome | | | Method of verification | | |
| field of environmental technology to recognize their non-technical | | The student notices non-technical, including environmental, aspects of technologies used in environmental protection. Applies the principles of occupational health and safety. | | | [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools | | |
| of chemistry including general chemistry, inorganic, organic, physical, analytical, including the knowledge necessary to describe and understand the phenomena and chemical processes occurring in the environment; measurement and the determination of the parameters of these processes. [K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in | | in the field of chemistry necessary to describe and understand phenomena and chemical processes occurring in the natural environment. Knows the basics of the methods used for measuring the level of environmental pollution. The student has basic knowledge in the field of soil, air and water protection against pollution and the theoretical basis of methods and types of apparatus used in the analysis of environmental pollution. | | | [SW1] Assessment of factual knowledge [SW1] Assessment of factual knowledge | | |
| | Green Technologies October 2022 first-cycle studies Full-time studies 2 3 general academic pro- Department of Analyt Subject supervisor Teachers Lesson type Number of study hours E-learning hours inclu Learning activity E-learning hours inclu Learning activity Subject supervisor Teachers Lesson type Number of study hours Familiarize students w chemistry of the atmo elements in the enviro and methods of detect Course outw [K6_U04] capable of and solving design ta field of environmenta to recognize their noi aspects, including er economic and legal. applying the principle occupational health a able to make initial a engineering solutions [K6_W02] has a basi of chemistry including chemistry, inorganic, physical, analytical, i knowledge necessar and understand the p and chemical proces in the environment, in aparameters of these [K6_W03] has a basi of soil, air and water design and supervisi environmentally frien technologies and tec which do not produce knows technology of neutralization of indu and basic understand the p and chemical process in the environment, in and the determinatio parameters of these [K6_W03] has a basi of soil, air and water design and supervisi environmentally frien technologies and tec which do not produce knows technology of neutralization of indu and basic understand indu | Green Technologies October 2022 first-cycle studies Full-time studies 2 3 general academic profile Department of Analytical Chemistry Subject supervisor Teachers Lesson type Lecture Number of study hours E-learning hours included: 0.0 Learning activity Familiarize students with the basics chemistry of the atmosphere, water elements in the environment. Familia and methods of detection. Course outcome [K6_U04] capable of formulating and solving design tasks in the field of environmental technology to recognize their non-technical aspects, including environmental, ecconmic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions [K6_W02] has a basic knowledge of chemistry inorganic, organic, physical, analytical, including the knowledge necessary to describe and understand the phenomena and chemical processes occurring in the environment; measurement and the determination of the parameters of these processes. [K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in | Green Technologies October 2022 Academic y realisation first-cycle studies Subject grownels Full-time studies Mode of detection Full-time studies Mode of detection 2 Language 3 ECTS cred general academic profile Assessmer Department of Analytical Chemistry > Faculty of C Subject supervisor prof. dr hab. in Teachers Intervision Lesson type Lecture Tutorial Number of study hours 30.0 0.0 Number of study hours 60 Instudy plan Number of study hours 60 Instudy plan Ke_UO4] capable of formulating and solving design tasks in the field of environmental technology to recompize their non-technical aspects, including environmental, economic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions The student h in the field of the environment, measurement and the determination of the parameters of these processes. [K6_W02] has a basic knowledge necessary to describe and understand the phenomena and chemical processes occurring in the environment, measurement and the determination of the parameters of these processes. The student h in the field of protection age thetho | Green Technologies October 2022 Academic year of realisation of subject first-cycle studies Subject group Full-time studies Mode of delivery 2 Language of instructio 3 ECTS credits general academic profile Assessment form Department of Analytical Chemistry -> Faculty of Chemistry Subject supervisor prof. dr hab. inž. Andrzej Watter Teachers Image: Study for the atmosphere sincluded in study plan Number of study hours 30.0 Number of study hours 60 10.0 Number of study hours 60 10.0 Familiarize students with the basics of chemical processes occurred not meention and methods of detection. Subject outcome Course outcome Subject outcome Subject outcome [K6_U04] capable of formulating and soliting design tasks in the field of environmental technology of chemistry including general academic organic, physical, analytical, including environmental, as of technologies used in environmental protection. A, the principles of occupational health and safety. Suble to make initial assessment of environmental protection. A, the principles of occupational health and safety. Suble to make initial assessement of environmental protection. A, the principles of occup | Green Technologies October 2022 Academic year of realisation of subject Full-time studies Subject group Full-time studies Mode of delivery 2 Language of instruction 3 ECTS credits general academic profile Assessment form Department of Analytical Chemistry -> Faculty of Chemistry Subject supervisor prof. dr hab. inz. Andrzej Wasik Teachers Eeson type Lesson type Lecture Learning nours included: 0.0 0.0 Learning nours included: 0.0 0.0 Learning nours included: 0.0 10.0 Familiarize students with the basics of chemical processes occurring in th chemistry of the atmosphere, water and soil. Presentation of geochemica elements in the environment. Familiarization with the most important envi and methods of detection. Course outcome Subject outcome [K6_U40] capable of formulating and solving design tasks in the genicipes of occupational health and safety. Is able to make initial assessment of environmental, aspects, including general solving design tasks in the genicipes of occupational health and safety. Is able to make initial assessement of environmental processes occurring in the field of chemistry necessary to describe and understand phenomena and chemical processes occurring in the field | Green Technologies Academic year of realisation of subject 2023/ 2023/ October 2022 Academic year of realisation of subject 2023/ first-cycle studies Subject group Option Subject researcher Option Subject 2023/ Full-time studies Mode of delivery at the Englis 5.0 general academic profile Assessment form exam Department of Analytical Chemistry -> Faculty of Chemistry Subject supervisor prof. dr hab. inz. Andrzej Wasik Teachers Itorial Laboratory Project Number of study hours 30.0 0.0 30.0 0.0 Number of study hours 60 10.0 55.0 Remiliarize students with the basics of chemical processes occurring in the natural chemistry of the atmosphere, water and soil. Presentation of geochemical cycles elements in the environment. Familiarization with the most important environmertal aspects, including environmental, aspects, including environmental, aspects, including environmental, aspects, including environmental, aspects, including environmental, aspects, including environmental, economic and legal. Is capable of occupational health and safety. The student notices non-technical, in the field of environmental, environment Anox shows the basics of the methods used for measuring the helevel of environmental and understand the phenomena | Green Technologies Academic year of realisation of subject 2023/2024 October 2022 Academic year of realisation of subject 2023/2024 First-cycle studies Subject group Optional subject gr Subject group relatives research in the field research in the field Full-lime studies Mode of delivery at the university 2 Language of instruction English 3 ECTS credits 5.0 general academic profile Assessment form exam Department of Analytical Chemistry -> Faculty of Chemistry Subject Supervisor prof. dr hab. in2. Andrzej Wasik Teachers Lecture Tutorial Laboratory Project Seminar Number of study 30.0 0.0 30.0 0.0 0.0 Learning nours included: 0.0 Elearning hours included: 0.0 Elearning hours included: 0.0 Elearning hours included: 0.0 Learning activity Participation in didactic classes included in study plan Participation in consultation hours Self-study Route 60 10.0 55.0 Imal active self here of the consultation hours Familiarize students with the basics of chemical processes occurring in the natural environmental economic and legal. Is capable of analyse information of technologies used in environmental protection. Applies to desceriba and adnets and phenomenta and chemical protectical basis (|

| Subject contents | Atmospheric chemistry. Aquatic chemistry. Soil chemistry. Persistent organic pollutants in the environment. Carbon cycle. Nitrogen cycle. Phosphorus cycle. Oxygen and sulfur cycle. The role of the chemical elements in living organisms. Heavy metals and micronutrients. Environmental analytics. Methods of measuring the degree of pollution. Remote pollution measurement methods. | | | | | | |
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| Prerequisites and co-requisites | Passed course of Inorganic Chemistry | | | | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade | | | | |
| | Written exam | 60.0% | 70.0% | | | | |
| | Laboratory reports | 60.0% | 30.0% | | | | |
| Recommended reading | Basic literature | 1. Gary W vanLoon and Stephen J Duffy, Environmental Chemistry, Oxford University Press | | | | | |
| | Supplementary literature | 1. S. Manahan, Environmental Chemistry, CRC Press, 2009 | | | | | |
| | eResources addresses | Adresy na platformie eNauczanie: | | | | | |
| Example issues/ example questions/ tasks being completed | | | | | | | |
| Work placement | Not applicable | | | | | | |