COURSE DESCRIPTION CARD - SYLLABUS

Course name
Geochemistry

Course

Field of study
Environmental Protection Technologies
Year/Semester
II/3
Area of study (specialization)
-
Profile of study
general academic
Level of study
First-cycle studies
Course offered in
polish
Form of study
full-time
Requirements
compulsory

Number of hours

Lecture
30
Laboratory classes
15
Other (e.g. online)
0
Tutorials
0
Projects/seminars
0

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
PhD Eng. Aleksandra Grząbka-Zasadzińska

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Responsible for the course/lecturer:
dr hab. inż. Dominik Paukszta

Prerequisites

Basic knowledge of geochemistry.

Student is able to search for information in scientific literature, databases and other properly chosen sources.

Student is able to laboratory work and operate the scientific equipment.

Understanding the need for further education and improve their professional competences.

Course objective

Obtaining knowledge in the construction of the Earth's lithosphere, learning about the natural processes

occurring in it, and mastering the ability to identify rocks and minerals based on morphological features, optical properties and X-ray studies.

Course-related learning outcomes

Knowledge

K_W06The graduate knows the rules of defining and characterizing raw materials, products and processes used in the chemical industry; the graduate has a knowledge of the directions of development of the chemical industry nationally and worldwide

K_W14 The graduate has a general knowledge necessary to understand the social, economic, legal and other non-technical conditions of the engineering activity

Skills

K_U01 The graduate acquires information from literature, databases and other sources related to chemical sciences, integrates, interprets and draws conclusions and formulates opinions

K_U02 The graduate works individually and works effectively in a team

K_U04 The graduate can prepare a description of a problem concerning the field studied in Polish and in a foreign language

K_U06 The graduate has the ability to self-study

K_U13 The graduate determines physical, chemical, mechanical and thermal properties of materials

Social competences

K_K01 The graduate understands the need to develop and improve his/her professional and personal competencies

K_K02 The graduate is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its environmental impact and the resulting responsibility for his/her decisions

K_K03 The graduate can cooperate and work in a group, accepting various roles in it

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Full-time credit - the knowledge acquired during the lecture is verified in the form of a written exam at the end of the lecture cycle. The exam consists of 10-20 test questions and 5-10 open-ended questions. Passing threshold: 50% of points. Examination issues will be sent to students by e-mail using the university's e-mail system. If it is not possible to conduct the exam in the face-to-face form, the state of knowledge will be verified in the form of an on-line test (10-20 closed questions and 5-10 open questions) using the eKursy platform.

Laboratory: Laboratory skills are verified on the basis of a theoretical test consisting of 3-5 questions. Theoretical issues for all exercises are handed over during the organizational meeting. Passing threshold: 50% of points. Additionally, reports containing a description of the course of the experiment

and the calculations made are subject to evaluation. If it is not possible to verify the state of knowledge in the stationary form, the assessment will be performed using the eKursy platform on the basis of an oral answer (3-5 questions) or a test (consisting of 5-10 closed questions and up to 5 open questions).

Programme content

Big bang model.

Construction and composition of the Earth. Plate tectonics.

Elemental and mineral structure - elements of solid state chemistry.

X-ray identification analysis of minerals.

Prevalence and geochemical classification of elements. Formation and occurrence of minerals.

Mineral recognition.

Igneous rocks and their composition.

Volcanic rocks. Mineral waters.

Salt minerals.

Rock weathering.

Sedimentary rocks.

Metamorphic processes.

Mineral fillers in technologies.

Teaching methods

Lectures, laboratory classes

Bibliography

Basic

1. Migaszewski Z., Gałuszka A., Podstawy geochemii środowiska, Warszawa 2007

2. Kosturkiewicz Z., Metody krystalografii, Wydawnictwo naukowe UAM

Additional

1. Duda R., L. Rejl L., Wielka encyklopedia minerałów, Elipsa 2

2. Kabata-Pendias A., Pendias H., Biogeochemia pierwiastków śladowych, PWN, Warszawa 1999

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes, preparation for tests/exams, lab report preparation) [1]	30	1,0

[1] delete or add other activities as appropriate