



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Structure and physicochemical properties of minerals

	Course
Field of study	Year/Semester
Circular System Technologies	2/3
Area of study (specialization)	Profile of study
-	general academic
Level of study	Course offered in
First-cycle studies	polish
Form of study	Requirements
full-time	elective

Number of		
hours		
Lecture	Laboratory classes	Other (e.g. online)
0	15	0
Tutorials	Projects/seminars	
0	0	
Number of credit points		
1		

Lecturers	
Responsible for the course/lecturer: dr inż. Aleksandra Grzábka-Zasadzińska	Responsible for the course/lecturer:
Zakład Polimerów, Instytut Technologii i Inżynierii Chemicznej	
ul. Berdychowo 4, 60-965 Poznań	
aleksandra.grzabka- zasadzinska@put.poznan.pl	

Prerequisites
Basic knowledge of geology.
The ability to obtain information from literature, databases, other properly selected sources.
Ability to work in a chemical laboratory and operate research equipment.
Understanding the need for training and improving one's professional competences and the significance of the effects of engineering activities.



Course objective

Mastering the ability to identify minerals on the basis of their physicochemical properties.

Course-related learning outcomes

Knowledge

K_W02 - has knowledge of physics and chemistry that allows to understand the phenomena and changes occurring in technological and environmental processes.

K_W10 - has knowledge of raw materials, products and processes used in closed-loop technologies.

Skills

K_U01 - can obtain information from literature, databases and other sources related to closed-loop technologies, also in a foreign language, integrate them, interpret them, draw conclusions and formulate opinions.

K_U03 - plans, selects equipment and scientific apparatus, carries out research, analyzes the results and formulates conclusions on this basis.

K_U08 - is able to plan and organize work individually and in a team.

K_U21 - is able to plan and carry out simple experiments related to closed-loop technologies, using both experimental and simulation methods, and is able to interpret their results and formulate conclusions.

Social competences

K_K02 - shows independence and inventiveness in individual work, and effectively cooperates in a team, playing various roles in it; objectively assesses the effects of his own work and that of team members.

K_K03 - independently determines and implements the action plan entrusted to him, defining priorities for its implementation, critically assesses the level of advancement in the implementation of the entrusted task.

K_K07 - shows care and full responsibility for the specialist equipment entrusted to him for testing.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

1. Test before the start of classes.
2. Assessment of laboratory work with a report.

Programme content

As part of the course, the student performs practical exercises covering the identification of minerals based on their physicochemical properties (color, gloss, optical properties, hardness, etc.). Student is also familiar with the method of structural analysis of minerals (WAXS method).

Teaching methods

Laboratories.



Bibliography

Basic

1. Migaszewski Z., Gałuszka A., Podstawy geochemii środowiska, Warszawa 2007.
2. Duda R., Rejl L., Wielka encyklopedia minerałów, Elipsa 2.

Additional

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

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,0
Classes requiring direct contact with the teacher	16	0,5
Student's own work (literature studies, preparation for test, preparation of lab report) ¹	9	0,5

¹ delete or add other activities as appropriate