COURSE DESCRIPTION CARD - SYLLABUS

Course name
Basics of geology [N1Bud1>PGL]

Course

Field of study
Civil Engineering

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
10

Laboratory classes
10

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Student beginning this course should have knowledge of geography, chemistry and physics appropriate for high school graduates; should have knowledge of descriptive geometry and basics of geodesy from 1st semester. SKILLS: Student should know basic laws taking place in nature, has basic information about chemical compounds and from the field of mechanics, geodesy and cartography. SOCIAL COMPETENCES: Student should be able to work independently and collaborate in a group, is responsible for the effects of his work, independently broadens his knowledge.

Course objective

Achieving the basic level of knowledge in the field of geology for the first-cycle of part-time studies in the field of Building Engineering.

Course-related learning outcomes

Knowledge:
1. Processes taking place in the depths of the Earth and on its surface
2. Genesis of rock-forming minerals, igneous, sedimentary and metamorphic rocks and their classification
3. The genesis and features of the building substrate, assessment of the basic geotechnical parameters

Skills:
1. Determining the suitability of various types of building substrate for investment purposes
2. Identification and naming of basic igneous, sedimentary and metamorphic rocks
3. Performing the description of the abovementioned rocks according to the scheme: structure, texture, mineral composition, name

Social competences:
1. A student is aware of the responsibility for the effects of his work
2. A student is aware of the need to improve his professional qualifications
3. A student understands the need for consultation and cooperation between the designer and geologist / geotechnician in the implementation of the task

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
The written test of the lecture material (test).
Practical recognition of minerals and rocks (completion of laboratory exercises).

Programme content

Basics of geology. Recognition of minerals and rocks.

Course topics

Lectures:
1. Origin of the Earth, basic theories used in geological analysis, stratigraphy;
2. Structure of the Earth"s interior, distribution of elements in the lithosphere and in the deeper layers of the Earth;
3. Convergent and divergent zones, earthquakes;
4. Basic information on tectonics: mechanics of faults and folds;
5. Endogenous processes - volcanism and plutonism;
6. Exogenous processes: physical and chemical weathering;
7. Erosion and accumulation activity of glaciers;
8. Fundamentals of hydrogeology (genesis and water resources on Earth, water in the aeration and saturation zone, groundwater flows), water in the building substrate and filtration deformations;
9. Erosion and accumulation processes caused by the action of flowing surface waters;
10. Erosion and accumulation processes caused by the action of stagnant surface waters;
11. Erosion and accumulation processes caused by the action of winds;
12. Surface mass movements, criteria of slope stability;
13. Geological and engineering classification of building land;
14. Methods and ways of examining the geotechnical parameters of the building substrate;
15. Methodology and scope of developing geotechnical, geological and engineering documentation;
16. Classification of agmic rocks and their macroscopic description;
17. Classification, identification and description of the basic scales;
18. Metamorphism: classification and recognition of basic metamorphic rocks;
19. Rocks as a building substrate, types of structural bonds in soils, soil sensitivity to changes in phase composition, survey of soils with specific properties.
Laboratory classes:
Rock-forming minerals, basic igneous, sedimentary and metamorphic rocks.

Teaching methods

Lecture - multimedia presentations.
Laboratory - practical classes in recognition of minerals and rocks.

Bibliography

Basic
1. Książkiewicz M., Geologia dynamiczna (Wydaw. Geol., Warszawa 1979)

2. Stankowski W., Wstęp do geologii kenozoiku (Wydaw. Nauk. UAM, 1996)
3. Malinowski, Glazer Z., Geologia i geotechnika dla inżynierów budownictwa (PWN, 1991)
4. Machowiak K., Flieger-Szymańska M. Podstawy geologii - przewodnik do cwiczeń dla studentów budownictwa
5. Jaroszewski W. (red.), Przewodnik do ćwiczeń z geologii dynamicznej (Wyd. PAE, Warszawa 1999)
6. Malinowski, Glazer Z., Geologia i geotechnika dla inżynierów budownictwa (PWN, 1991)
Additional
1. Stanley S. M., Historia Ziemi (PWN 2001)
2. Van Andel T. H., Nowe spojrzenie na starą planetę. Zmienne oblicze Ziemi (PWN 1997)
3. Jeż J., Gruntoznawstwo budowlane (Wydaw. PP, 2004)
4. Pisarczyk R., Gruntoznawstwo inżynierskie (PWN, 2001)
5. Jeż J., Biogeotechnika (Wydaw. PP, 2008)
6. Mizerski W., Geologia dynamiczna (PWN 2010)
7. Czubla P., Mizerski W., Świerczewska-Gładysz E., Przewodnik do ćwiczeń z geologii (wydanie II), (PWN 2009)

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00