COURSE DESCRIPTION CARD - SYLLABUS

Course name

BASICS OF GEOLOGY

Course

Field of study

BUILDING ENGINEERING

Year/Semester

1/2

Area of study (specialization)

-

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

Number of hours

Lecture

10

Laboratory classes

Other (e.g. online)

Tutorials

10

Projects/seminars

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Faculty of Civil and Transport Engineering

St. Piotrowo 5 (building A2) room 339C

Responsible for the course/lecturer:

Prerequisites

KNOWLEDGE: High school graduate knowledge in geography, chemistry and physics as well as geodesy and descriptive geometry at the university level.

SKILLS: Knowledge of the basic laws taking place in nature, basic information about chemical compounds, basic information in the field of mechanics, issues in the field of geodesy and cartography.

SOCIAL COMPETENCES: A student is 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:

The written test of the lecture material (test).

Practical recognition of minerals and rocks (completion of laboratory exercises).

Programme content

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

Teaching methods

- lecture with a multimedia presentation

- laboratory classes with the use of mineral and rock samples

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	2,0
Classes requiring direct contact with the teacher	20	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate