

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Fundamentals of Geology</b>		Code <b>1010101121010125119</b>
Field of study <b>Sustainable Building Engineering First-cycle</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 2</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>-</b> Laboratory: <b>15</b> Project/seminars: <b>-</b>		No. of credits <b>2</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>2 100%</b> <b>2 100%</b>
<b>Responsible for subject / lecturer:</b> dr hab. Katarzyna Machowiak email: katarzyna.machowiak@put.poznan.pl tel. (61) 665 2136 Faculty of Civil and Environmental Engineering ul. Piotrowo 5 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr hab. Katarzyna Machowiak email: katarzyna.machowiak@put.poznan.pl tel. (61) 665 2136 Faculty of Civil and Environmental Engineering ul. Piotrowo 5 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
<b>1</b>	<b>Knowledge</b>	- basic knowledge of chemistry, geography and physics
<b>2</b>	<b>Skills</b>	The student knows: - basic laws of nature - basic information about chemical compounds - basic information about mechanics - issues in the field of geodesy and cartography
<b>3</b>	<b>Social competencies</b>	The student: - can work single-handed and cooperate in the group - is responsible for the effects of his work - independently expands his knowledge
<b>Assumptions and objectives of the course:</b> Achieving a basic level of geology knowledge		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. has knowledge in areas of mathematics, physics, chemistry, biology and other sciences useful in formulating and solving problems associated with sustainable building engineering (civil engineering, environmental engineering and architecture) - [P6S_WG (O)]		
2. knows the basics of geology, has knowledge in soil mechanics and foundation engineering of construction works - [P6S_WG (T/I)]		
<b>Skills:</b>		
1. knows how to retrieve information from literature, databases and other properly selected sources; knows how to integrate the information thus retrieved, how to interpret it and how to draw conclusions and formulate and justify opinions. - [P6S_UW (O/T/I) P6S_UK (O)]		
2. while formulating and solving engineering tasks knows how to perceive their systemic and non-technical aspects - [P6S_UW (T/I) P6S_UK (O)]		
<b>Social competencies:</b>		

1. takes responsibility for reliability of results and their interpretation - [P6S\_KK (O)]  
 2. is aware of the necessity of developing professional and personal competencies; understands and is aware of possibilities of continuous learning (second and third cycle studies, postgraduate courses) - [P6S\_KR (O)]

### Assessment methods of study outcomes

**Lectures:**

- written exam in the form of a combination test (choice of given answers (closed tasks), open tasks, complementing of missing content)
- positive grade - scoring a minimum of 50% of the maximum number of points from the test

91 ? 100% very good

81 ? 90% good plus

71 ? 80% good

61 ? 70% satisfactory plus

51 ? 60% satisfactory

50% unsatisfactory

**Laboratory classes:**

- on each class, the quiz from previous classes. The average of the quizzes will be a component of the final grade,
- the final credit will be concern on the identification of rock samples and their description according to the adopted rules - positive assessment in recognition and correct description of at least half of the samples
- grading scale 2-5

### Course description

**Lecture 1**

Evolution and structure of the Earth, basic mechanisms occurring in inanimate nature and principles of stratigraphy

**Lecture 2**

Endogenous processes (volcanism, plutonism, earthquakes, mechanics of faults and folds)

**Lecture 3**

Exogenous processes (physical, chemical, erosive activity of water and wind)

**Lecture 4**

Erosional and accumulative activity of glaciers (geological structure of post-glacial areas)

**Lecture 5**

Basics of hydrogeology (water in the zone of aeration and saturation, physical and chemical properties of water, water in the building soil)

**Lecture 6**

Geohazards - surface mass movements (landslides, creeps, rock falls - mechanisms and effects, geohazard areas)

**Lecture 7**

Rocks and soils as a building foundation (review of soils with specific properties: suffosional, collapsing, freezing, thixotropic)

**Laboratory classes:**

1. Minerals (genesis, classification of minerals, crystallographic systems, physical features)
2. Rock-forming minerals (quartz, feldspar, mica, pyroxenes, amphiboles, olivines, phoides)
3. Basic metal compounds (sulphides and sulfosalts, genesis, physical properties, occurrence, usage)
4. Plutonic rocks (IUGS classification, textures, mineral composition, occurrence, use in building)
5. Volcanic rocks (IUGS classification, structures, textures, occurrence, use in building)
7. Metamorphic rocks (types of metamorphism, metamorphic facies, primary rocks and products of metamorphism, occurrence, use in building)

**Basic bibliography:**

1. Grotzinger J.P., Jordan T.H., Understanding Earth (2007)
2. Skinner B.J., Porter S.C., Park J., The Dynamic Earth(2000)
3. Plummer C. C., Physical geology (2008)
4. Benn D. I. & Evans D.J.A., Glaciers & Glaciation (2010)

**Additional bibliography:**

1. Stanley S. M., Earth system history (1999-2009)
2. Van Andel T. H., New Views on an Old Planet (1994)

### Result of average student's workload

<b>Activity</b>	<b>Time (working hours)</b>	
1. Participation in lectures (contact hours)	15	
2. Participation in laboratory classes (contact and practical hours)	15	
3. Preparing for laboratory classes (individual work)	5	
4. Participation in consultations related with laboratory classes (contact hours)	5	
5. Preparing for laboratory classes and final exam (individual work)	8	
6. Preparing to the passing of final lecture material (individual work)	5	
7. Additional own work - literature study (independent work)	5	
8. Participation in the exam (presence on written exam), (contact hours)	1	
9. Participation in the laboratory material exam (oral exam), (contact hours)	1	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	60	2
Contact hours	32	1
Practical activities	21	1