

**AGH**AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Module name: Geological hazards

Academic year: 2015/2016 Code: BTR-2-410-TU-s ECTS credits: 5

Faculty of: Geology, Geophysics and Environmental Protection

Field of study: Tourism and Recreation Specialty: Spa Tourism

Study level: Second-cycle studies Form and type of study: Full-time studies

Lecture language: English Profile of education: Academic (A) Semester: 4

Course homepage: —

Responsible teacher: dr inż. Krobicki Michał (krobicki@geol.agh.edu.pl)

Academic teachers: dr hab. inż. Golonka Jan (jan_golonka@yahoo.com)

Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Knowledge			
M_W001	Describes geological hazards and disasters explain relationship between geological hazard and geotourism	TR2A_U11	Examination
M_W002	Knows and can explain basic terminology related to volcanoes, volcano hazards, mitigation and protection	TR2A_U11	Examination
M_W003	Knows and can explain basic terminology related to earthquakes, earthquake hazards, mitigation and protection	TR2A_U11	Examination
M_W004	Knows and can explain basic terminology related to subsidence and collapse, subsidence hazards, mitigation and protection	TR2A_U11	Examination
M_W005	Describes karst as geological hazard	TR2A_U11	Examination
M_W006	Knows and can explain basic terminology related to mass movements, landslides: forecast and mitigation	TR2A_U11	Examination
M_W007	Knows and can explain basic terminology related to floods, their forecast and mitigation	TR2A_U11	Examination

M_W008	Knows and can explain basic terminology related to geodynamic of coastal erosion, coastline protection		Examination
M_W009	Knows and can explain basic terminology related to temperature changes in ground and permafrost		Examination
M_W010	Knows and can explain basic terminology related to climate changes		Examination

FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning
Knowledge												
M_W001	Describes geological hazards and disasters explain relationship between geological hazard and geotourism	+	-	-	-	-	-	-	-	-	-	-
M_W002	Knows and can explain basic terminology related to volcanoes, volcano hazards, miigation and protection	+	-	-	-	-	-	-	-	-	-	-
M_W003	Knows and can explain basic terminology related to earthquakes, earthquake hazards, mitigation and protection	+	-	-	-	-	-	-	-	-	-	-
M_W004	Knows and can explain basic terminology related to subsidence and collapse, subsidence hazards, mitigation and protection	+	-	-	-	-	-	-	-	-	-	-
M_W005	Describes karst as geological hazard	+	-	-	-	-	-	-	-	-	-	-
M_W006	Knows and can explain basic terminology related to mass movements, landslides: forecast and mitigation	+	-	-	-	-	-	-	-	-	-	-
M_W007	Knows and can explain basic terminology related to floods, their forecast and mitigation	+	-	-	-	-	-	-	-	-	-	-
M_W008	Knows and can explain basic terminology related to geodynamic of coastal erosion, coastline protection	+	-	-	-	-	-	-	-	-	-	-

M_W009	Knows and can explain basic terminology related to temperature changes in ground and permafrost	+	-	-	-	-	-	-	-	-	-	-
M_W010	Knows and can explain basic terminology related to climate changes	+	-	-	-	-	-	-	-	-	-	-

Module content

Lectures

- 1.Introduction, definition of geological hazard and disaster, program, literature (2h).
- 2.Earthquakes as geological hazard (2h).
- 3.Earthquakes forecast and mitigation (2h).
- 4.Volcanoes as geological hazard (2h).
- 5.Volcanoes forecast and mitigation (2h).
- 6.Subsidence and collapse: forecast and mitigation (2h).
- 7.Karst as geological hazard (2h).
- 8.Mass movements, landslides: forecast and mitigation (2h).
- 9.Floods, combination of geological and hydrological hazards (2h).
- 10.Floods,forecast and mitigation (2h).
- 11.Geodynamic of coastal erosion (2h).
- 12.Coastline protection (2h).
- 13.Temperature changes in ground, permafrost (2h).
- 14.Geology and climate changes (2h).
- 15.Geological hazards and geotourism (2h).

Method of calculating the final grade

Oceną końcową jest ocena z egzaminu

Prerequisites and additional requirements

Znajomość podstaw geologii, Znajomość języka angielskiego

Recommended literature and teaching resources

- Physical Geology, Charles Plummer, David McGeary, Diane H. Carlson. McGraw-Hill College
- Introduction to Physical Geology. Edward J. Tarbuck, Frederick K. Lutgens, Dennis Tasa, 2004. Earth: An Prentice Hall
- Geology. Stanley Chernicoff, Donna Whitney, Prentice Hall
- Geologica Hazards National Atlas
- <https://geohazards.usgs.gov/>

Scientific publications of module course instructors related to the topic of the module

Oszczypko, N., Golonka, J., Zuchiewicz, W. 2002. The landslide at Lachowice (Western Outer Carpathians, Poland): Effects of catastrophic flood in 2001 [Osuwisko w Lachowicach (Beskidy Zachodnie): Skutki powodzi z 2001 r]. Przegląd Geologiczny, 50 (10 PART 1), pp. 893-898.

Golonka, J. 2001. Seismotectonics and plate tectonics of the circum-Caspian area [Sejsmotektonika i tektonika płyt obszaru wokółkaspijskiego] (in Polish). IV Ogólnopolska Konferencja "Neotektonika Polski" Neotektonika, Sejsmotektonika - stan badań i perspektywy rozwoju, Streszczenia referatów i komunikatów. p. 47-48. Krakow

Golonka, J. & Lewandowski, M. (eds). Geology, geophysics, geothermics and deep structure of the West Carpathians and their basement. Publications of the Institute of Geophysics Polish Academy of Sciences. Monographic Volume, M-28 (363): 113-125.

Additional information

None

Student workload (ECTS credits balance)

Student activity form	Student workload
Participation in lectures	28 h
Realization of independently performed tasks	90 h
Contact hours	2 h
Preparation for classes	10 h
Summary student workload	130 h
Module ECTS credits	5 ECTS