

Hydrothermal Processes and Hydrothermal Alteration

COURSE DESCRIPTION

University: Comenius University Bratislava	
Faculty: Faculty of Natural Sciences	
Course ID: PriF.KMPLG/N-mGMP-046/22	Course title: Hydrothermal Processes and Hydrothermal Alteration
Educational activities: Type of activities: practicals / lecture Number of hours: per week: 1 / 2 per level/semester: 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 2. Summer semester	
Educational level: II. Degree	
Prerequisites:	
Course requirements: Written exam. To obtain an A rating, it is necessary to demonstrate 92-100% of the required knowledge; to obtain a B rating of 84-91%, a C rating of 76-83%, a D rating of 68-75% and rating E 61-67% of required knowledge.	
Learning outcomes: Students will gain knowledge about hydrothermal processes in the earth's crust, about the main types of hydrothermal alteration and their genesis and the role of fluids in mineralization and ore-forming processes. In the practical part, they will learn to identify and interpret common alteration minerals, alteration textures in the macro- and microscale. They will also learn to interpret mineral textures, associations, their relationships in space and time.	
Class syllabus: The origin of water, its chemical and physical properties, fluid sources of hydrothermal systems and their characteristics, flow of hydrothermal fluids in the earth's crust. Chemical properties and dissolved components of hydrothermal fluids, geochemistry of their transport. Precipitation of components from fluids, its main causes and mechanisms. Introduction to hydrothermal alteration - classification, main factors influencing their formation, isochemical and cationic metasomatism, modeling of fluid interaction with rock. Main groups of alteration minerals and their characteristics. Potassic alteration types, Na-Ca alteration types, sericitization and argillitization, skarnization, carbonatization, serpentinization, steatitization, silicification, propylitization, chloritization, sulfidization. Alteration textures and their interpretation. Textures of ores - classification, primary and secondary textures. Paragenetic study of ores and determination of age relationships of minerals. Hydrothermal breccias and their interpretation.	
Recommended literature: Robb, L., 2005: Introduction to ore-forming processes. Blackwell Publishing, 373 s. Pirajno, F. 2010. Hydrothermal processes and mineral systems. Springer, 1250 s. Taylor, R., 2009: Ore textures. Recognition and interpretation. Springer, 301 s. Chovan, M., Háber, M., Jeleň, S., Rojkovič I., eds., 1994: Ore textures in the Western Carpathians", Slovak Academic Press, Bratislava.	
Languages necessary to complete the course: English	
Notes: The subject is taught only in the summer semester.	

Past grade distribution

Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Lecturers:

prof. Mgr. Peter Koděra, PhD.

Last change: 24. April 2023**Approved by:** prof. RNDr. Monika Huraiová, PhD.