

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Nahajališča kovinskih in nekovinskih mineralnih surovin
Course title:	Mineral Deposits

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Geologija, druga stopnja, magistrski	Geookolje in geomateriali (modul)	2. letnik	Letni

Univerzitetna koda predmeta/University course code:

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
45	0	30	0	0	75	5

Nosilec predmeta/Lecturer:

Vrsta predmeta/Course type:

Jeziki/Languages:	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Zaključen prvostopenjski bolonjski študij geologije.	Prerequisites: Completed the first-level of Bologna geology study.
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Vsebina:

Vsebina predmeta zajema fizikalno kemične pogoje nastanka nahajališč različnih kovinskih mineralnih surovin v času in njihove izotopske značilnosti. Poudarek je na modeliranju procesov, s katerimi je v zvezi nastanek in redistribucija komponent rudnih in jalovinskih mineralov v različnih tipih rudišč.

Ugotavljanje pomena mineralne parageneze in kemične sestave mineralne surovine na uporabno vrednost surovine. Pregled nahajališč neklovinskih mineralnih surovin v slovenskem prostoru: kamnine (apnenci, dolomit, kremenove kamnine, tuf, magmatske in metamorfne kamnine, peščenjaki, skrilavci), gline, kremenovi peski, gramoznice. Nahajališča mineralnih surovin za občasno uporabo v restavraciji.

Pri vajah se študentje seznanijo tudi z računalniškim programom WORKBENCH in njegovo uporabo pri modeliranju pogojev izločanja rudnih in jalovinskih mineralov v hidrotermalnih rudiščih ter redistribuciji njihovih komponent pri procesih preperevanja.

Content (Syllabus outline):

The content of the subject covers the physico-chemical conditions of the formation of deposits of various metal mineral resources in time and their isotopic characteristics. The emphasis is on modeling the processes of formation and redistribution components of ore and gangue minerals in various types of mineral deposits.

Determination of the importance of mineral paragenesis and chemical composition of the mineral resource on the usable value of the raw material. Overview of non-metal deposits in Slovenia: rocks (limestone, dolomite, quartz rocks, tuff, igneous and metamorphic rocks, sandstones, slates), clays, quartz sands, gravel pits. Mineral resources deposits for occasional use in restoration.

During the exercises, students are also acquainted with the WORKBENCH computer program and its use in modeling the conditions for the precipitation of ore and gangue minerals in hydrothermal mineral deposits, and redistribution of their components in the weathering process.

Temeljna literatura in viri/Readings:

Drovenik, M., 1982, Nahajališča mineralnih surovin 1. del, NTF, Oddelek za geologijo, 370 pp.
Evans, A. M., 1993, Ore Geology and Industrial Minerals - An Introduction, Blackwell Science, 390 pp.
Pankhurst, R. J., 2005, Mineral Deposits and Earth Evolution, Geological Society of London, 265 pp.
Dimkovski, T., Rokavec, D., 2001, Nahajališča nekovinskih mineralnih surovin v Sloveniji, Geološki zavod Slovenije, 123

Cilji in kompetence:

CILJI: Študent pridobi znanje o značilnostih in pogojih nastanka različnih tipov rudnih in nekovinskih nahajališč. Zna določiti in predpostaviti mineralno paragenozo nahajališča.

KOMPETENCE: Študent je sposoben prepoznavati značilnosti in pogoje nastanka nahajališč različnih rudnih in nekovinskih mineralov in kamnin. Sposoben je makroskopsko in mikroskopsko določiti strukturne in teksturne značilnosti rude iz različnih tipov rudišč, njeno mineralno sestavo in zaporedje kristalizacije rudnih ter jalovinskih mineralov. S pomočjo računalniških programov (Geochemist's Workbench) je sposoben modelirati značilnosti in pogoje izločanja rudnih in jalovinskih mineralov iz hidrotermalnih raztopin.

Objectives and competences:

OBJECTIVES: The student acquires knowledge about the characteristics and conditions of the formation of different types of ore and non-metallic deposits. He is possible to determine and presume the mineral paragenesis of the deposits.

COMPETENCES: The student is able to recognize the characteristics and conditions of the formation of deposits of various ore and non-metallic minerals and rocks. He is able to macroscopically and microscopically determine the structural and textural characteristics of ores from various types of mineral deposits, their mineral composition and the sequence of crystallization of ore and gangue minerals. With the help of computer programs (Geochemist's Workbench), he is able to model the characteristics and conditions of precipitation of ore and gangue minerals from hydrothermal solutions.

Predvideni študijski rezultati:

Študent spozna optične značilnosti različnih rudnih mineralov v odsevni svetlobi. Sposoben je prepoznati in določiti zaporedje kristalizacije rudnih in jalovinskih mineralov v različnih tipih rudišč in hidrotermalne spremembe prikamnine. Sprejema in razume odločitve o uporabni vrednosti nahajališča mineralnih surovin.

Intended learning outcomes:

Student learns about the optical characteristics of different ore minerals in reflected light. He is capable to recognize and determine the sequence of crystallization of ore and gangue minerals in various types of mineral deposits and hydrothermal changes of the adjacent.

Metode poučevanja in učenja:

Predavanja, prikaz slikovnega gradiva (LCD projektor), mikroskopiranje rudnih preparatov iz različnih tipov rudišč in njihovo makroskopsko prepoznavanje. Mikroskopiranje svežih in hidrotermalno spremenjenih magmatskih in drugih kamnin iz rudišč različnega nastanka. Praktično delo z računalniškim programom Workbench.

Learning and teaching methods:

Lectures, presentation of image material (LCD projector), microscopy of ore preparats from different types of mineral deposits and their macroscopic recognition. Microscopy of fresh and hydrothermally changed igneous and other rocks from the mineral deposits of different origin. He accepts and understands the decisions about the useful value of the mineral resource deposits. Practical work with the Workbench computer program.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	50,00 %	Theoretical exam
Praktični del	50,00 %	Practical exam
Ocenjevalna lestvica: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10) ob upoštevanju Statuta UL in fakultetnih pravil.		Evaluation scale: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10) having regard to the Statute of UL and faculty rules.

Reference nosilca/Lecturer's references:

GLAVAŠ, Neli, MOURELLE, Lourdes Maria, GÓMEZ, Carmen P., LEGIDO, José Luis, ROGAN ŠMUC, Nastja, DOLENEC, Matej, KOVAČ, Nives. The mineralogical, geochemical, and thermophysical characterization of healing saline mud for use in pelotherapy. *Applied clay science*, ISSN 0169-1317. [Print ed.], 2017, vol. 135, str. 119-128, ilustr., doi: [10.1016/j.clay.2016.09.013](https://doi.org/10.1016/j.clay.2016.09.013).

BERDEN, Tina, DOLENEC, Matej. Identifikacija izvora surovin za izdelavo kamenih orodij z rentgensko fluorescenčno spektroskopijo (XRF) = Identifying the origin of the raw materials in lithic productions using X-ray fluorescence spectroscopy (XRF). *Arheo : arheološka obvestila*, ISSN 0351-5958, 2016, št. 33, str. 25-38, ilustr.

KOMAR, Darja, DOLENEC, Tadej, DOLENEC, Matej, VRHOVNIK, Petra, LOJEN, Sonja, LAMBAŠA, Živana, KNIEWALD,

Goran, ROGAN ŠMUC, Nastja. Physico-chemical and geochemical characterization of Makirina Bay peloid mud and its evaluation for potential use in balneotherapy (N Dalmatia, Republic of Croatia). *Indian journal of traditional knowledge*, ISSN 0972-5938, 2015, vol. 14, no. 1, str. 5-12.