

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Mineralogija
Course title:	Mineralogy

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Geologija, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	Letni

Univerzitetna koda predmeta/University course code:

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
30	0	60	0	0	90	6

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:

Pogoj za vključitev v delo je vpis v 1. letnik študija.	Prerequisites: Registration to the 1st academic year.
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Vsebina:

NASTANEK MINERALOV: kristalizacija iz magme, izločanje iz raztopin, kristalizacija med metamorfozo.
LASTNOSTI MINERALOV: lastnosti vezane na kristalno strukturo (oblika, habitus); lastnosti, ki temeljujejo na interakciji minerala s svetlobo (sijaj, barva, barva črte, prosojnost, luminescenca, optični fenomeni); mehanske lastnosti (razkolnost in lom, trdota, trdnost); lastnosti vezane na maso minerala (gostota, specifična teža); ostale lastnosti (magnetnost, radioaktivnost, topnost v kislinah, senzibilne lastnosti, električne lastnosti).
KRISTALNA IN MINERALNA KEMIJA: osnovni gradniki mineralov, kemijske vezi v mineralih, spremenljivost kemične sestave mineralov, izločnine ali eksolucije, izračun mineralne formule, grafični prikaz sestave mineralov, mineralne reakcije, stabilnost mineralov.
SISTEMATIKA IN IDENTIFIKACIJA MINERALOV: kriсталokemična klasifikacija mineralov v 8 razredov, (1) samorodne prvine, (2) sulfidi (enostavni sulfidi in sulfosoli), (3) haloidi (enostavni haloidi, dvojni haloidi, oksihaloidi), (4) oksidi in hidroksidi, (5) karbonati, nitrati, borati, (6) sulfati, kromati, molibdati, volframati, (7) fosfati, arzenati, vanadati, (8) silikati (nezo-, soro-, ciklo-, ino-, filo-, tekto-).

Content (Syllabus outline):

FORMATION OF MINERALS: magma crystallization, precipitation from solutions, crystallization during metamorphosis.
MINERAL PROPERTIES: properties related to the crystal structure (shape, habitus); properties based on the interaction of the mineral with light (lustre, color, line color, transparency, luminescence, optical phenomena); mechanical properties (cleavage and fracture, hardness, strength); properties related to the mass of the mineral (density, specific gravity); other properties (magnetism, radioactivity, solubility in acids, sensible properties, electrical properties).
CRYSTAL AND MINERAL CHEMISTRY: basic building blocks of minerals, chemical bonds in minerals, variability of chemical composition of minerals, exsolution lamellas, calculation of mineral formula, graphic representation of mineral composition, mineral reactions, mineral stability.
SYSTEMATICS AND IDENTIFICATION OF MINERALS: crystallochemical classification of minerals in 8 classes, (1) native elements, (2) sulphides (simple sulfides and sulfosols), (3) halids (simple halides, double halides, oxyhalids), (4) oxides and hydroxides, (5) carbonates, nitrates, borates, (6) sulfates, chromates, molybdates, tungstates, (7) phosphates, arsenates, vanadates, (8) silicates (nezo-, soro-, cyclo-, ino-, phyllo-, tecto-).

Temeljna literatura in viri/Readings:

KLEIN, C. & HURLBUT, C.S. Jr., 1993: Manual of Mineralogy. John Wiley & Sons, 681 p.
 WENK, H.-R. & BULAKH, A., 2004: Minerals: Their Constitution and Origin. Cambridge University Press, 646 p.
 DEER, HOWIE, ZUSSMAN: Rock-Forming Minerals. Book Series. The Geological Society.
 VRABEC, M.: Gradiva za predmet mineralogija dostopna preko elektronskega sistema VIS. / Materials for the subject mineralogy are accessible via the VIS electronic system.

Cilji in kompetence:

Študenti se naučijo prepoznavati najpomembnejše kamninske minerale z optičnim mikroskopom v presevani svetlobi.

Objectives and competences:

Students learn to recognize the most common rock forming minerals by macroscopic observations and under optical microscope in plane polarized light.

Predvideni študijski rezultati:

Poznavanje osnovnih preiskav mineralnih snovi z optičnim mikroskopom v presevani svetlobi. Prepoznavanje glavnih kamninskih mineralov na makroskopskem nivoju in z optičnim mikroskopom v presevani svetlobi. Povezava med poznavanjem lastnosti mineralov in petrologijo ter sedimentologijo. Sposobnost izbire in uporabe ustrezne domače in tuje literature iz področja mineralogije.

Intended learning outcomes:

Knowledge of basic investigations of minerals with optical microscope in transmissive light. Identification of major rock forming minerals using macroscopic prospecting and with optical microscope in plain polarized light. Linking the knowledge of mineral properties with petrology and sedimentology. Ability to choose and use relevant domestic and foreign literature in the field of mineralogy.

Metode poučevanja in učenja:

Predavanja in vaje.

Learning and teaching methods:

Lectures and practical work.

Načini ocenjevanja:**Delež/Weight****Assessment:**

1. makroskopsko prepoznavanje mineralov	20,00 %	1. macroscopic identification of minerals
2. mikroskopsko prepoznavanje mineralov	20,00 %	2. microscopic identification of minerals
3. pisni izpit	20,00 %	3. written exam
4. ustni izpit	40,00 %	4. oral exam
Študent mora obveznosti opravljati v predpisanem vrstnem redu. Najprej makroskopsko prepoznavanje mineralov, nato mikroskopsko prepoznavanje mineralov, sledi pisni in šele nato ustni izpit. Ocenjevalna lestvica: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10) ob upoštevanju Statuta UL in fakultetnih pravil.		The student must perform the duties in the prescribed order. First, macroscopic identification of minerals, then microscopic identification of minerals, followed by written and then oral examination. Grades: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10), according to University Statute and Faculty Acts.

Reference nosilca/Lecturer's references:

JANÁK, Marian, UHER, Pavel, KROGH RAVNA, Erling J., KULLERUD, Kåre, VRABEC, Mirijam. Chromium-rich kyanite, magnesio-staurolite and corundum in ultrahigh-pressure eclogites (examples from Pohorje Mountains, Slovenia and Tromsø Nappe, Norway). European journal of mineralogy, 2015, vol. 27, no. 3, str. 377-392, doi: 10.1127/ejm/2015/0027-2436.
 ROGAN ŠMUC, Nastja, SERAFIMOVSKI, Todor, DOLENEC, Tadej, DOLENEC, Matej, VRHOVNIK, Petra, VRABEC, Mirijam, JAČIMOVIĆ, Radojko, LOGAR ZORN, Vesna, KOMAR, Darja. Mineralogical and geochemical study of Lake Dojran sediments (Republic of Macedonia). Journal of geochemical exploration, ISSN 0375-6742. [Print ed.], 2015, vol. 150, str. 73-83, doi: 10.1016/j.gexplo.2014.12.019.
 JANÁK, Marian, FROITZHEIM, Nikolaus, YOSHIDA, Kenta, SASINKOVÁ, V., NOSKO, Martin, KOBAYASHI, Tomoyuki, HIRAJIMA, Takao, VRABEC, Mirijam. Diamond in metasedimentary crustal rocks from Pohorje, Eastern Alps: a window to deep continental subduction. Journal of metamorphic geology, ISSN 0263-4929, 2015, vol. 33, str. 495-512, doi: 10.1111/jmg.12130.