

## UČNI NAČRT PREDMETA/COURSE SYLLABUS

<b>Predmet:</b>	Mineralogija glin
<b>Course title:</b>	Clay Mineralogy

<b>Študijski programi in stopnja</b>	<b>Študijska smer</b>	<b>Letnik</b>	<b>Semestri</b>
Geologija, druga stopnja, magistrski	Geokolje in geomateriali (modul)	1. letnik, 2. letnik	Zimski

**Univerzitetna koda predmeta/University course code:** 734

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

**Nosilec predmeta/Lecturer:** Matej Dolenc

**Vrsta predmeta/Course type:** Izbirni / Elective

<b>Jeziki/Languages:</b>	<b>Predavanja/Lectures:</b>	Angleščina, Slovenščina
	<b>Vaje/Tutorial:</b>	Angleščina, Slovenščina

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

Zaključen dodiplomski študij, osnovna računalniška pismenost.

**Prerequisites:**

Completed undergraduate study, basic computer literacy.

**Vsebina:**

Struktura, nomenklatura in nastanek glinenih mineralov  
Tehnike priprave vzorcev za določanje glinenih mineralov  
Določanje glinenih mineralov (kaolinit, illit, smektiti, vermikulit, klorit) in z njimi povezanih mineralov (silikati, karbonati, Fe oksidi in hidroksidi, sulfidi in soli)  
Prepoznavanje glinenih mineralov z zmesno strukturo  
Kvalitativne in kvantitativne analize  
Uporabnost glinenih mineralov  
Vpliv na zdravje človeka

**Content (Syllabus outline):**

Structure, nomenclature, and occurrences of clay minerals  
Sample preparation techniques for clay minerals  
Identification of clay minerals (kaolinite, illite, montmorillonite, vermiculite, chlorite) and associated minerals (silica minerals, carbonates, Fe-oxydes/hydroxides, sulphides, salts)  
Basic identification of mix-layered clay minerals  
Qualitative and quantitative analysis  
Clay minerals applications  
Clays and human health

**Temeljna literatura in viri/Readings:**

BERGAYA, F., THENG, B.K.G., LAGALY, G. 2006: Handbook of clay science. Elsevier, Amsterdam, 1223 p.p.  
MURRAY, H.H., 2007: Applied clay mineralogy. Elsevier, Amsterdam, 180 p.p.  
PARKER, A., Rae, J.E., 1998: Environmental interaction of clays. Springer, Berlin, 271 p.p.  
DUANE, M.M., C. ROBERT, and Jr. REYNOLDS, 1997: X-ray Diffraction and the Identification and Analysis of Clay Minerals. Oxford University Press, New York, 378 p.p.

**Cilji in kompetence:**

CILJI: Študent pridobi znanje o strukturah glinenih mineralov, Študent se spozna z osnovami kvalitativnega in kvantitativnega določanja tipov glinenih mineralov v naravnih materialih, poznavanje njihovega nastanka,

**Objectives and competences:**

OBJECTIVES: Student acquires knowledge of clay minerals structure. Student gets familiar with: principles of qualitative and quantitative determination of different types of clay minerals in geomaterials,

<p>pojavljanja in primernosti uporabe ter vpliva na okolje.</p> <p><b>KOMPETENCE:</b> Študenti znajo:</p> <ul style="list-style-type: none"> <li>- prepoznati glinene minerale z uporabo rentgenske preškovne difrakcije (z uporabo HighScore+ programa)</li> <li>- določiti mineralno sestavo glin</li> <li>- razumeti pomembnost lastnosti glinenih mineralov in glin</li> <li>- določiti potrebne postopke predpriprave vzorcev za določanje mineralov glin.</li> </ul>	<p>occurrences and applications of clay minerals and their impact on the environment.</p> <p><b>COMPETENCES:</b> Students are able to:</p> <ul style="list-style-type: none"> <li>- identify clay minerals using XRD technique (using HighScore+ software)</li> <li>- determine the mineralogical composition of clays</li> <li>- understand the environmental significant properties of clay and clay minerals</li> <li>- determine required sample preparation techniques for clay minerals.</li> </ul>
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<p><b>Predvideni študijski rezultati:</b></p> <p>Študent pozna strukturo glinenih mineralov, razume njeno povezanost z uporabnimi lastnostmi glinenih mineralov in zna kvalitativno in kvantitativno določiti glinene minerale in primernost njihove uporabe. Pri ugotovljeni prisotnosti glinenih mineralov v naravnih materialih pozna in razume njihov vpliv v okolju.</p>	<p><b>Intended learning outcomes:</b></p> <p>Students gets familiar with clay minerals structures, understand its relationship with the clay minerals properties and are able to qualitatively and quantitatively identify and determine appropriate use of clay minerals. Acquires knowledge about clay minerals impact on the environment.</p>
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<p><b>Metode poučevanja in učenja:</b></p> <p>Predavanja, seminarske vaje (30) v laboratoriju in računalniški učilnici, samostojno reševanje problema v obliki seminarske naloge.</p>	<p><b>Learning and teaching methods:</b></p> <p>Lectures, laboratory work and work with computers, independent resolving of the problem in the form of the seminar work.</p>
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<b>Načini ocenjevanja:</b>	<b>Delež/Weight</b>	<b>Assessment:</b>
teoretična vprašanja	40,00 %	theory
reševanje treh različnih difraktogramov	40,00 %	identification of three diffractograms
seminarska naloga	20,00 %	seminar work
Ocenjevalna lestvica: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10) ob upoštevanju Statuta UL in fakultetnih pravil.		Grading scale: 51-60% (6); 61-70% (7); 71-80% (8); 81-90% (9); 91-100% (10) UL and faculty rules.

<p><b>Reference nosilca/Lecturer's references:</b></p> <p>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.</p> <p>KOMAR, Darja, DOLENEC, Matej, LAMBAŠA, Živana, SANJA SLAVICA, Matešić, LOJEN, Sonja, KNIEWALD, Goran, VRHOVNIK, Petra, DOLENEC, Tadej, ROGAN ŠMUC, Nastja. Geochemical characterization and environmental status of Makirina Bay sediments (northern Dalmatia, Republic of Croatia). Geologia Croatica : a journal of the Institute of Geology Zagreb and Croatian Geological Society, ISSN 1330-030X, 2015, vol. 68, no. 1, str. 79-92.</p> <p>KOMAR, Darja, DOLENEC, Matej, LAMBAŠA, Živana, SANJA SLAVICA, Matešić, LOJEN, Sonja, KNIEWALD, Goran, VRHOVNIK, Petra, DOLENEC, Tadej, ROGAN ŠMUC, Nastja. Geochemical characterization and environmental status of Makirina Bay sediments (northern Dalmatia, Republic of Croatia). Geologia Croatica : a journal of the Institute of Geology Zagreb and Croatian Geological Society, ISSN 1330-030X, 2015, vol. 68, no. 1, str. 79-92.</p> <p>GLAVAŠ, Neli, ROGAN ŠMUC, Nastja, DOLENEC, Matej, KOVAČ, Nives. The seasonal heavy metal signature and variations in the microbial mat (petola) of the Sečovelje Salina (northern Adriatic). Journal of soils and sediments, ISSN 1439-0108, 2015, vol. 15, iss. 12, str. 2359-2368.</p> <p>VRHOVNIK, Petra, ROGAN ŠMUC, Nastja, DOLENEC, Tadej, SERAFIMOVSKI, Todor, DOLENEC, Matej. An evaluation of trace metal distribution and environmental risk in sediments from the Lake Kalimanci (FYR Macedonia). Environmental earth sciences, ISSN 1866-6280, 2013, vol. 70, iss. 2, str. 761-775.</p>
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