

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Antropogena & recentna sed.okolja
Course title:	Antropogene and Recent Sedimentary Environments

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Geologija, druga stopnja, magistrski	Regionalna geologija in paleontologija (modul)	1. letnik, 2. letnik	Zimski

Univerzitetna koda predmeta/University course code: 747

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
30	15	0	0	30	75	5

Nosilec predmeta/Lecturer: Andrej Šmuc, Nastja Rogan Šmuc

Vrsta predmeta/Course type: Izbirni / Elective

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

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

Osnovno znanje kemije, geologije, sedimentologije in geokemije, pridobljeno na dodiplomskem študiju.
Obveznosti študenta: Študent mora oddati vse zahtevane samostojne naloge ter opraviti preizkus teoretičnega in praktičnega znanja.

Prerequisites:

Basic knowledge of chemistry, geology, sedimentology and geochemistry, acquired at the undergraduate level.
Methods: Students must submit all required separate tasks and pass the test of theoretical and practical knowledge.

Vsebina:

Urbana in recentna sedimentna okolja: definicije, klasifikacija in osnovne značilnosti
Izvor urbanih sedimentov
Transportni procesi
Procesi nastajanja sedimentov v urbanih okoljih in njihove lastnosti
Jezerska okolja
Plitvomorska okolja
Evaporitna okolja
Jezovi in rezervoarji
Poplavne ravnice
Jamski sedimenti
Onesnaženje sedimentov
Upravljanje in načrtovanje urbanih in industrijskih sedimentnih okolij

Content (Syllabus outline):

Urban and recent sedimentary environment; definitions, classification and basic characteristics
Sourcing of urban sediments
Transport processes
Processes of formation of sediments in urban environments and their properties
Lake environments
Shallow water environments
Evaporite environments
Dams and reservoirs
Floodplains
Cave sediments
Contamination of sediments
The management and planning of urban and industrial sedimentary environments

Temeljna literatura in viri/Readings:

POLETO, C. & CHARLESWORTH S., 2010, Sedimentology of Aqueous Systems, Wiley-Blackwell, 205
LOTTERMOSER, B.G., 2010, Mine Wastes: Characterization, Treatment and Environmental Impacts, Springer, 410pp.
BRINKMANN, R. & TOBIN, G.A., 2003, Urban sediment removal: the science, policy, and management of street sweeping. Kluwer, Dordrecht, 166 pp.
PERRY, C. & TAYLOR, K. G., 2006, Environmental Sedimentology. Wiley, 460 pp.

Cilji in kompetence:

CILJI: Cilj predmeta je seznaniti slušatelje z različnimi urbanimi sedimentnimi okolji, procesi in dinamiko nastajanja sedimentov v njih, z lastnostmi omenjenih sedimentov in njihovo interakcijo z okoljem, kar je bistvenega pomena za razumevanje antropogenega onesnaženja. Izkušnje iz študija urbanih sedimentacijskih okoljih so tudi del planiranja pri načrtovanju novih industrijskih in urbanih sedimentacijskih okolij.

KOMPETENCE: Urbana okolja so postala integriran del našega življenja, saj več kot 50% svetovne populacije živi v urbanih centrih. Urbani centri predstavljajo glavna prizorišča antropogenih fizikalnih in kemičnih sprememb, ki posredno vodijo v spremembe bioloških sistemov. Človek s svojim poseganjem v prostor ustvarja nova sedimentacijska okolja (cestne površine, kanalizacijski sistemi, jezovi, akumulacijska jezera, reke ipd.), kjer se kopičijo velike količine sedimentov. Družba s svojo dejavnostjo neposredno vpliva na sestavo sedimentov, ki so fizikalno in kemično močno aktivni ter reagirajo z okolno vodo in ekosistemi. Urbana sedimentacijska okolja tako predstavljajo osnovne sisteme za študije antropogenega vpliva okolja in omogočajo spremljanje časovne dinamike antropogenih vplivov na okolje.

Objectives and competences:

OBJECTIVES: The aim of the course is to acquaint students with different urban and recent sedimentary environments, processes and dynamics of sediment in them and also with the properties of mentioned sediments and their interaction with the environment, which is essential for the understanding of anthropogenic pollution. The experience gained from the study of urban depositional environments are also part of the planning in the design of new industrial and urban depositional environments.

COMPETENCES: Urban environments have become an integrated part of our lives, as more than 50% of the world's population lives in urban centers. Urban centers are the main venues of anthropogenic physical and chemical changes, which indirectly leads to changes in biological systems. Man with his interference in space creates new sedimentary environments (road surface, drainage systems, dams, reservoirs, rivers, etc.), that accumulate large amounts of sediment. The activities of modern society have a direct impact on the composition of the sediments, which are physically and chemically active and strongly react with the surrounding water and ecosystems. Urban sedimentary environments also represent the basic systems for studies of anthropogenic environmental impact and enable monitoring of temporal dynamics of anthropogenic impacts on the environment.

Predvideni študijski rezultati:

Študent pozna urbana sedimentacijska okolja in razume procese, ki delujejo v njih. S pomočjo pridobljenih podatkov zna interpretirati potencialna onesnaženja ter predlagati ustrezne rešitve. Zna izbrati in uporabiti ustrezne analitske tehnike ter ustrezno obdelavo podatkov. Razume fizikalne, kemične in biološke interakcije med urganimi sedimenti in okoljnimi ekosistemi.

Intended learning outcomes:

Students get to know urban sedimentary environments and understand the processes operating in them. With the data collected on the field she can interpret potential contamination and to propose appropriate solutions. Knows how to select and use appropriate analytical techniques and appropriate data processing. Understand the physical, chemical and biological interactions between urban and recent sediments and adjacent ecosystems.

Metode poučevanja in učenja:

Predavanja z uporabo prezentacij.
Izdelava seminarja na izbrano tematiko in njegova javna predstavitev
Terenske vaje obsegajo 5 dni dela na terenu.

Learning and teaching methods:

Lectures by using the presentations.
Creating a seminar on a selected topic and its public presentation
Field activities include five days of field work.

Načini ocenjevanja:

Delež/Weight

Assessment:

Izdelava in predstavitev seminarja	80,00 %	Preparation and presentation of seminar
Pisni izpit	20,00 %	Written exam
Za pozitivno oceno mora biti pravilno rešenih najmanj 50% teoretičnih vprašanj.		The positive assessment must be properly resolved, at least 50% of the theoretical issues.

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.], 2016, str. 1-10 [in press],

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.

ROGAN ŠMUC, Nastja, DOLENEC, Tadej, SERAFIMOVSKI, Todor, TASEV, Goran, DOLENEC, Matej, VRHOVNIK, Petra. Heavy metal characteristics in Kočani Field plant system (Republic of Macedonia). Environmental geochemistry and health, 2012, vol. 34, iss. 4, str. 513-526.

MURI, Gregor, ČERMELJ, Branko, JAČIMOVIĆ, Radojko, SKABERNE, Dragomir, ŠMUC, Andrej, BURNIK ŠTURM, Martina, TURŠIČ, Janja, VREČA, Polona. Consequences of anthropogenic activity for two remote alpine lakes in NW Slovenia as tracked by sediment geochemistry. Journal of paleolimnology, ISSN 0921-2728, 2013, vol. 50, no. 4, str. 457-470.

ROŽIČ, Boštjan, ŠMUC, Andrej. Gravity-flow deposits in the Toarcian Perbla formation (Slovenian basin, NW Slovenia). Riv. ital. paleontol. stratigr., 2011, vol. 117, no. 2, str. 283-294.

ROŽIČ, Boštjan, KOLAR-JURKOVŠEK, Tea, ŠMUC, Andrej. Late Triassic sedimentary evolution of Slovenian Basin (eastern Southern Alps): description and correlation of the Slatnik Formation. Facies, 2009, vol. 55, no. 1, str. 137-155, doi: 10.1007/s10347-008-0164-2.