

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Geomorfologija
Course title:	Geomorphology

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Geologija, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	Letni

Univerzitetna koda predmeta/University course code:

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
15	0	15	0	15	45	3

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:

Vpis v 2. letnik študija geologije.	Prerequisites: Inscription to the Course.
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Vsebina:

Uvod: ravnovesja in pragovi v geomorfologiji; osnovni principi, hitrost procesov, kaj poganja geomorfno procese, klima
 Gomorfologija velikih meril: oblika planeta, tektonika plošč, oceani, orogeni, vpliv plašča na topografijo
 Preperavanje ('in situ' dekompozicija in ustrezne oblike)
 Procesi in oblike na pobočjih, erozijske in akumulacijske - primarne spremenljivke: klima, material, seizmotektonsko okolje
 Fluvialni procesi v geomorfologiji: drenažni bazeni, voda in sediment v koritih, nastanek in oblike korit, poplavne ravnice, terase
 Eolske oblike in sedimenti: nastanek in tipi puščav, sipine, puhlice
 Glacialni in periglacialni procesi in oblike: glaciologija, tipi ledenikov ter glacialna in periglacialna geologija: erozijski procesi in oblike, depozicijske oblike
 Tektonska geomorfologija: topografija povezana z deformacijami, ki so posledica različnih tektonskih premikov
 Antropogena geomorfologija: Antropogene topografske oblike ter človeški posegi v prostor in njihov vpliv na intenzivnost geomorfni procesov
 Metode datiranja in določanje starosti površja
 Kabinetne vaje:

Content (Syllabus outline):

Introduction: equilibrium and thresholds in geomorphology, guiding principles, rates of processes, what drives geomorphic processes, the climate context
 Large scale geomorphology: shape of planet, plate tectonics, ocean basins, orogens, influence of mantle on topography
 Weathering ('in situ' decomposition and specific shapes)
 Hillslopes: processes and basic parameters (geology, climate, tectonics)
 Fluvial processes in geomorphology: Drainage basins, water and sediment in channels, channel form and processes, floodplains
 Eolian forms and deposits: type and origin of deserts, dunes, loess
 Glacial and periglacial processes and forms: Glaciology, type of glaciers, glacial and periglacial geology: erosional forms and processes, depositional forms
 Tectonic geomorphology: topographic expression of deformation associated with different tectonic features
 Anthropogenic geomorphology: study of role of humans in creating landforms and modifying the geomorphological processes
 Dating methods and establishing timing in the landscape
 Tutorial:
 Introduction to applied geomorphological mapping

<p>Uvod v uporabno geomorfološko kartiranje Tehnike geomorfološkega kartiranja na terenu Digitalno kartiranje: vizualizacija, interpretacija in kvantifikacija Zemljinega površja Kartografija: oblikovanje, simbolizacija in vizualizacija geomorfoloških kart Primer kartiranja kvartalnih pobočnih sedimentov na konkretnem primeru</p> <p>Terensko delo: Terenska merjenja v geomorfologiji Prepoznavanje in kartiranje geomorfni oblik</p>	<p>Techniques in applied geomorphological mapping Digital mapping: vizualization, interpretation and quantification of landforms Cartography: design, symbolisation and visualization of geomorphological maps Case studies: Mapping Quaternary slope deposit</p> <p>Field work: Field measurements in geomorphology Recognition and mapping of different landscape features</p>
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Temeljna literatura in viri/Readings:

<p>ANDERSON, R.S. & ANDERSON S.P. 2010: Geomorphology The mechanics and Chemistry of landscape. - Cambridge, 637 pp. SUMMERFIELD, M.A. 1991: Global Geomorphology. - Longman, 537 pp., ISBN: 0-582-30156-4. LEOPOLD L.B., WOLMAN G.M. & MILLER J.P. 1995: Fluvial processes in geomorphology. - Dover, 522 pp. SZABO J., DAVID L. & LOCZY. 2010: Anthropogenic geomorphology: A guide to man-made landforms. – Springer. 298 pp. BURBANK, D.W. & ANDERSON R.P. 2001: Tectonic geomorphology. – Blackwell Science, 274 pp. SMITH, M.J., PARON, P. & GRIFFITHS, S. 2011: Geomorphological mapping, methods and applications. – Elsevier. 612 pp. McKean, J., Roering, J. (2004). Objective landslide detection and surface morphology mapping using high-resolution airborne laser altimetry. Geomorphology, 57(3-4), 331–351. JABOYEDOFF, M., OPPIKOFER, T., ABELLÁN, A., DERRON, M.-H., LOYE, A., METZGER, R., PEDRAZZINI, A. (2012). Use of LIDAR in Landslide Investigations: A Review. Natural Hazards, 61(1), 5–28. GLENN, N. F., STREUTKER, D. R., CHADWICK, D. J., THACKRAY, G. D., DORSCH, S. J. (2006). Analysis of LiDAR-derived topographic information for characterizing and differentiating landslide morphology and activity. Geomorphology, 73(1-2), 131–148. GROHMANN, C. H., SMITH, M. J., RICCOMINI, C. (2011). Multiscale Analysis of Topographic Surface Roughness in the Midland Valley, Scotland. IEEE Transactions on Geoscience and Remote Sensing, 49(4), 1200–1213.</p>

Cilji in kompetence:

<p>CILJI: Slušatelj osvoji osnovno znanje o interakciji med eksogenimi in endogenimi procesi na zemeljski površini in o rezultatih tega medsebojnega učinkovanja. Študent se nauči principov terenskih merenj in jih zna vpeti v prostor. Nauči se nadgraditi znanje pridobljeno pri posameznih poglavjih v okviru predmetov iz 1. letnika. Naučijo se tehnike geomorfološkega kartiranja, vizualizacije, interpretacije in kvantifikacije Zemljinega površja. Naučijo se opremiti in oblikovati geomorfološko karto s simboli in primerno vizualizacijo in izdelati lastno geomorfološko karto kvartalnih sedimentov. KOMPETENCE: Vsebina predmeta študentu omogoča in hkrati od študenta zahteva, da na konkretnih primerih posamezne geomorfne oblike ustrezno kvalitativno opiše in jih kvantitativno izmeri ter genetsko in procesno opredeli.</p>	<p>Objectives and competences:</p> <p>OBJECTIVES: Students learn about basic interactions between endogenic and exogenic processes and the resulting landforms. Students learn basic of field measurements and mapping. They learn about techniques in applied geomorphological mapping, vizualization, interpretation and quantification of landforms. Students learn design, symbolisation and visualization of geomorphological maps and will made own geomorphological map of Quaternary slope deposits. COMPETENCES: Student is able to describe and quantitatively measure different geomorphological features and interpret processes of their formation.</p>
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Predvideni študijski rezultati:

<p>Študent pozna in razume vzročne povezave med geomorfni procesi in oblikami. V različnih praktičnih situacijah je na podlagi pridobljenega znanja sposoben genetsko razumeti posamezno geomorfno obliko ali proces in razumeti ter oceniti njen (njegov) morebiten vpliv na naravno in antropogeno okolje. Predmet</p>	<p>Intended learning outcomes:</p> <p>Student is able to understand the connection between the geomorphic process and form. In practical situations the students understands genetic origin of particular geomorphic form or a process and is able to evaluate its influence on natural and anthropogenic environment. The student is able to ponder over interconnections</p>
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<p>študentu omogoča razmislek o povezanosti vseh geomorfnih oblik z antagonizmom in sinergizmom med eksogenimi in endogenimi procesi v konkretnih terenskih situacijah. Študent zna povezovati znanje, ki ga je pridobil pri posameznih poglavjih v okviru drugih predmetov. Hkrati se seznanja s praktičnimi aplikacijami pridobljenega znanja na druga področja.</p>	<p>between all endogenic and eksogenic processes reflected in a specific form. The student is able to work with professionals from other fields (civil engineers, biologists, ..) and is able to use domestic and foreign professional and scientific literature.</p>
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Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja in terensko delo.	Lectures and field work.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	80,00 %	Examination
Poročilo iz terenskega dela	20,00 %	Fieldwork reports

Reference nosilca/Lecturer's references:

TROBEC, Ana, ŠMUC, Andrej, POGLAJEN, Sašo, VRABEC, Marko. Submerged and buried Pleistocene river channels in the Gulf of Trieste (Northern Adriatic Sea) : geomorphic, stratigraphic and tectonic inferences. *Geomorphology*, ISSN 0169-555X. [Print ed.], 2017, vol. 286, str. 110-120.

JAMŠEK RUPNIK, Petra, ČUŠ, Franc, ŠMUC, Andrej. Geomorphology and wine : the case of Malvasia in the Vipava valley, Slovenia = Geomorfologija in vino : primer sorte malvazija v Vipavski dolini. *Acta geographica Slovenica*, ISSN 1581-6613. [Tiskana izd.], 2016, 56, št. 1, str. 7-23.

ŠMUC, Andrej, JANEČKA, Karolina, LEMPA, Michał, KACZKA, Ryszard J. The spatio-temporal dynamics of the Ciprnik complex landslide, Tamar valley, Julian Alps, Slovenia. *Studia Geomorphologica Carpatho-Balcanica*, ISSN 0081-6434, 2015, vol. 49, str. 35-54.

POPIT, Tomislav, ROŽIČ, Boštjan, ŠMUC, Andrej, KOKALJ, Žiga, VERBOVŠEK, Timotej, KOŠIR, Adrijan. A LIDAR, GIS and basic spatial statistic application for the study of ravine and palaeo-ravine evolution in the upper Vipava valley, SW Slovenia. *Geomorphology*, ISSN 0169-555X. [Print ed.], 2014, vol. 204, str. 638-645.

ŠMUC, Andrej, ROŽIČ, Boštjan. Tectonic geomorphology of the Triglav Lakes Valley (easternmost Southern Alps, NW Slovenia). *Geomorphology (Amst.)*. [Print ed.], 2009, issue 4, vol. 103, str. 597-604.

PLACER, Ladislav, KOŠIR, Adrijan, POPIT, Tomislav, ŠMUC, Andrej, JUVAN, Grega. The Buzet Thrust Fault in Istria and overturned carbonate megabeds in the Eocene flysch of the Dragonja Valley (Slovenia) = Buzetski narivni prelom v Istri in inverzne karbonatne megaplasi v eocenskem flišu v dolini Dragonje. *Geologija*. [Tiskana izd.], 2004, knj. 47, 2, str. 193-198.