| **1. Course title:** Geomorphology | | | | |
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| **2. Code:** | | **3. Type (lecture, seminar, laboratory):** lecture and practice | | |
| **4. Total of contact hours:** 47 hours | | **5. Number of credits (ECTS):** 5 | | |
| **6. Pre-requisites (max. 3):** none | | | | |
| **7. Announced:** ☐ autumn semester, ☒ spring semester, ☐ both semesters | | | | |
| **8. Limit for participants:** no | | | | |
| **10. Instructor-in-charge (faculty, institute and department):**  Dénes LÓCZY, DSc (FS, Institute of Geography, Department of Physical Geography and Environment) | | | | |
| **11. Instructor(s) and percentage:** | | Dénes LÓCZY | | 100% |
| **12. Language:** English | | | | |
| **13. Course objectives and learning outcomes:**  Knowledge:  On successful completion of this course students are acquainted with the landscape of the Earth, the laws, interactions, processes which influence geomorphic evolution and are familiar their dynamics.  On successful completion of the course students are expected to be able to:  interpret the impact of physical geographical processes on the Earth’s surface,  recognize surface landforms on which the everyday activities of humanity take place,  reveal their origin and to evaluate environmental changes (climate change, human impact) from a geomorphological perspective.  In addition to have an understanding of phenomena and interrelationships, students in teacher training become able to apply the logic of transmitting geomorphological information, its variability and the incorporation of geomorphological knowledge in teaching geography.  Subject-specific skills:  Students in earth sciences become capable of finding topics of contact between geology and geomorphology, recognizing and explaining the impact of geological processes on the Earth’s surface. | | | | |
| **14. Course outline / Milestones**  In addition to frontal lectures the particular topics are discussed through individual and group work. Practices are divided into two blocks of equal length (twice 45 minutes). Here the focus is on the explanation basic processes and phenomena (both physical and chemical) affecting the evolution of landforms, on practising mathematical calculation intending to reveal the order of their magnitude. The contact points with related disciplines, both natural and social sciences, are pointed out at the practices. In addition to lectures and practices, the course includes field work too, organized in the area of Pécs and its immediate vicinity, the Mecsek Mountains.    Week 1  lecture: The contents and system of geomorphology, processes and types of mechanical and chemical weathering; practice: Basic physical and chemical processes of weathering, drivers, types and role in geomorphic evolution  Week 2  lecture: General description of mass movements, the conditions leading to mass movements; typology: slides, collapses, creeps, flows;  practice: Relationship between mass movements and slope shape, surface rock and climate; criteria for typology  Week 3  lecture: Geomorphic action of rivers 1;  practice: Description of channel, floodplain and longitudinal profile; valley formation processes and valley types  Week 4  lecture: Geomorphic action of rivers 2;  practice: Formation of fluvial terraces and alluvial fans; Delta formation, characterization and types  Week 5  lecture: Contact between standing water and land: coastal evolution;  practice: Wave action and its role in coastal evolution; landforms of broad low coasts, evolution of high coasts and typical abrasional landforms  Week 6  lecture: Land ice and its geomorphic action; its geographical distribution on Earth;  practice: Conditions of the formation of land ice; accumulation and erosion by glaciers, periglacial geomorphic evolution  Week 7  lecture: Wind action, eolian surface evolution and its geographical distribution on the Earth;  practice: Laws of transport by the wind; eolian landforms of deserts and vegetated areas  Week 8  lecture: Functional and morphological types of volcanoes;  practice: volcano morphological exercises  Week 9  lecture: Rocks liable to karstification, processes of karst formation, types of karst;  practice: Evolution and properties of surface and underground karstic landforms  Week 10  lecture: Loess formation and loess types, geographical distribution of loess;  practice: Erosion in loess areas and landforms on loess  Week 11  lecture: Landform assemblages: plains, valleys, basins, mountains, ranges;  practice: Classification of macroforms on Earth, typology, characteristic examples  Week 12  lecture: The role of climate in geomorphic evolution;  practice: climate-morphological regions of the Earth  Week 13  lecture: Geomorphological synthesis and thresholds in geomorphic evolution;  practice: Geomorphological cycles, morphological analysis and climatic geomorphology | | | | |
| **15. Mid-semester works**  Week 1  Calculation of surface growth during mechanical weathering; volume change of water at freezing, concept of density, study of weathering in groups  Week 2  Calculation of slope angle (percentage and degrees), identification of mass movement types in groups  Week 3  Reading and interpreting charts (hypsographic curve, Hjulström diagram), calculation of channel slope, interpretation of river sections for pattern and valley types in groups  Week 4  Relationships between terrace formation and stream power, comparison of alluvial fans and deltas in groups  Week 5  Interpretation of wave motion, calculation of seawater salinity (units), characteristics of low and high coasts studied in groups  Week 6  Conditions and process of ice accumulation on land; determination of snowline, the significance of ice in geomorphic evolution studied in groups  Week 7  Sediment transport by wind (laminar and turbulent air flow), motion of sand grains and its consequences, study of erosional and accumulational landforms in groups  Week 8  Relationships between the chemical and physical properties of magma and volcanism, volcanic landforms, the concept of viscosity, recent and fossil landforms, study of the morphological types of volcanoes in groups  Week 9  Weathering by solution: solution of carbonates and hydrocarbonates with formula, calculation: fluvial transport of dissolved matter at different temperatures, CO2 concentration and water discharge; typology of karsts and their landforms in groups  Week 10  Processes of loess formation, its conditions, suspended load transport by wind, partial processes of piping and their impact on the erosion of loess surfaces, on geomorphic evolution  Week 11  Classification of macroforms, typology in group work  Week 12  Climate zonation on Earth, typical processes of climatic regions and their typical landforms studied in groups  Week 13  Theory of surface planation, primary and final peneplain, its evolution stages, problems with the theory, study of climatic geomorphology and geomorphic evolution in groups, games to interpret threshold theory | | | | |
| **16. Summative assessment, formative assessment**  Field work:  The date of field work is not fixed in the calendar, but announced to students at least two weeks before (depending on weather). Participation is compulsory on one occasion or split up into parts. Absence from field work means non-fulfilment. Field work is completed with a test of 10 scores. For activity at field work maximum three scores can be added to the scores of the test.  Practice:  Participation is compulsory, absence is allowed on maximum three occasions. Additional or unjustified absences result in non-fulfilment of the course. At each practices a 10-score test is filled in from the topic just studied. Activity during the nclass can result in maximum three additional scores. At the end of the semester the average of scores is calculated and contributes to total evaluation. If this average remains below five scores (50 %), the course requirements are not fulfilled.  Lecture:  Oral examination is organized from the material of lectures, evaluated on a 10-score scale.  Parts of the course are integrated in the following way (in parentheses the weighting of partial scores):  • lecture:1–10 scores (40 %)  • practice: 1–10 scores (40 %)  • field work: 1–10 scores (20 %),  The percentage of total scores (30 scores = 100 %) after weighting indicates the mark given at the end of the semester:  • 50–59 % – 2  • 60–74 % – 3  • 75–84 % – 4  • 85–100 % – 5 | | | | |
| **17. Reading assignments:**   1. HAMBLIN, W.K. and CHRISTIANSEN, E.C. (2004) *Earth’s Dynamic Systems*. 10th Edition. Prentice Hall, New York. 816 p. ISBN-13: 978-0131420663 2. GREGORY, K.J. (2010). *The Earth’s Land Surface*. SAGE Publications, London. 360 p. ISBN-13: 978-1848606203 | | | | |
| **18. Recommended texts:**  [1] HUGGETT, R.J. (2011). *Fundamentals of Geomorphology.* Routledge, Lonson. 531 p. ISBN-13: 978-0415567756 | | | | |
| **Date** | 13 November, 2017 | **Prepared** |  | |
| Dénes LÓCZY, DSc  instructor-in-charge | |
| **Endorsed** | | |  | |
| András TRÓCSÁNYI PhD leader of the program | |