**Informačný list predmetu (Course description)**

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| **Vysoká škola (University):** Comenius University in Bratislava | |
| **Fakulta (Faculty):** Faculty of Natural Sciences | |
| **Kód predmetu (Code):** PriF.KMPLG/N-mMPL-007/22 | **Názov predmetu (Course):** Application of GIS in Economic and Environmental Geology |
| **Druh, rozsah a metóda vzdelávacích činností (Study design):** 3 hours of seminar | |
| **Počet kreditov (Number of credits earned): 4** | |
| **Odporúčaný semester/trimester štúdia (Recommended semester):** 1. Winter semester | |
| **Stupeň štúdia (Degree):** II. Degree | |
| **Podmieňujúce predmety (Prerequisite courses):** none | |
| **Podmienky na absolvovanie predmetu (Grading policy):** Knowledge is continuously assessed by participation in seminars and the preparation of practical excercise (50%) and final exam (50%). To obtain an A rating, it is necessary to demonstrate 92 - 100% of the required knowledge; to obtain a B rating 84-91%, for a C rating 76-83%, for a D rating 68-75% and for an E rating 61-67% of the required knowledge. | |
| **Výsledky vzdelávania (Course objectives):** Gaining of theoretical knowledge in the field of software modelling of mineral deposits, gaining of knowledge and practical skills in the processing of GIS map data for the purposes of modelling in 3D software, mastering the preparation and analysis of geological, drilling and geochemical exploration data and their 3D visualization, gaining of practical skills in building of 3D geological, geochemical and combined models and gaining of skills in using of 3D geological software for reserve calculation purposes. | |
| **Stručná osnova predmetu (Syllabus):** Introduction to GIS and 3D geological modelling in economic and environmental geology. Leapfrog Geo user interface. Database preparation and data analysis (geological, geochemical and survey data). Preparation and import of 2D GIS vector layers and other formats into a 3D interface, creating of digital terrain model in 3D space, rectification of 2D raster layers (surface maps, cross sections) and their digitization, adjustment of vector data. Drill holes visualization and their attributes. Building of the geological model – 3D modelling of geological boundaries and tectonic structures. Numeric modelling (assays) in geological domains using interpolation methods, visualization of mineralization zones, alteration zones and creation of combined 3D models. Creation of cross sections from 3D models, creation of map outputs from 3D modelling and their modification, saving and export to other exchange formats. Using 3D geological software for the purpose of calculating reserves of mineral resources in the area of the deposit. | |
| **Odporúčaná literatúra (Recommended literature):**<br>Hofierka, J. 2003: Geografické informačné systémy a diaľkový prieskum zeme, Vysokoškolskéučebné texty, Prešov. Miklín J., Dušek R., Krtička L., Kaláb O., 2018: Tvorba máp, učební text Ostravské Univerzity, Ostravská Univerzita, Prírodovedecká Fakulta.<br>E. J. Cowan, R. K. Beatson, H. J. Ross, W. R. Fright, T. J. McLennan, T. R. Evans, J. C. Carr, R. G. Lane, D. V. Bright, A. J. Gillman, P. A. Oshust, M. Titley, 2003: Practical implicit geological modelling, 5th International Mining Geology Conference, Bendigo, Vic, 17 - 19 November 2003, p. 89 – 99. JinmiaoWang, Hui Zhao, Lin Bi, Liguan Wang, 2018: Implicit 3D modeling of ore body from geological boreholes data using Hermite Radial Basis functions, Minerals 2018, 8, 443, p. 1 – 15; Leapfrog Geo 3D tutorial. | |
| **Jazyk, ktorého znalosť je potrebná na absolvovanie predmetu (The course is held in):** English language. | |
| **Poznámky (Other course information):** | |

**Hodnotenie predmetov (Grading history)**

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| a | b | c | d | e | f |

The percentage of students evaluated who received an A, B, ... Fx. The total sum of a, b, c, d, e, f is 100. If a student has obtained FX in one year and after the next entry of the course, the D rating shall be taken into account.

**Vyučujúci (Professor):** prof. Peter Koděra, PhD., Mgr. Jana Brčeková, PhD.

**Dátum poslednej zmeny (Last update):**

**Schválil (Approved by):** prof. RNDr. Monika Huraiová, PhD.