| **1. Course title:** Introduction to GIS II. | | | | |
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| **2. Code:** | | **3. Type (lecture, seminar, laboratory):** laboratory | | |
| **4. Total of contact hours:** 39 hours | | **5. Number of credits (ECTS):** 4 | | |
| **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):**  István Péter KOVÁCS, PhD (FS, Institute of Geography, Department of Cartography and Geoinformatics) | | | | |
| **11. Instructor(s) and percentage:** | | István Péter KOVÁCS | | 39% |
| Dr. Bugya Titusz | | 38% |
| Dr. Gyenizse Péter | | 23% |
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| **12. Language:** English | | | | |
| **13. Course objectives and learning outcomes:**  *Aims:*  1. To provide an understanding of geoinformatics and Qgis software.  2. To provide a quantitative discussion of basic nomenclature of geoinformatics and methods of data analysis.  *Knowledge:*  On successful completion of this course students are expected to be able to comprehend fundamental concepts of GIS, to have an understanding of GIS techniques, to be familiar with Qgis software and vector and raster geo data processing.  *Subject-specific skills:*  On successful completion of the course students are expected to be able to evaluate georeferencing tool of Qgis, to able to digitize vector data and present thematic maps. Student comprehend basic field survey techniques and able to collect data. | | | | |
| **14. Course outline / Milestones**   1. Disclose the course description to students. Downloading and installing Qgis, start and quit the application, file formats. 2. Vector layer, attribute table, query. 3. Vector layer style. 4. Raster layer settings query. 5. Georeferencing, digitizing. 6. Vector analysis. 7. Vector analysis. 8. Raster analysis. 9. Interpolation. 10. Preparation for field survey. 11. Field survey. 12. Processing of field data. 13. Tematic mapping of field data. | | | | |
| **15. Mid-semester works**   1. Download and install Qgis, start and quit the application. Open raster and vector layers in various format. Layer handling, set layer properties. 2. Attribute table management (open, edit, save, query and extend attribute table). 3. Join attribute table; display point, line and polygon layers. 4. Open raster layer, edit style, histogram creation. 5. Georeferencing raster image, point, line and polygon digitizing. 6. Vector map analysis: selection, run geoprocessing tools. 7. Vector map analysis: create buffer zone, selection by another map. 8. Raster map analysis: boole algebra. 9. Interpolation: delaunay, voronoi polygons, TIN and IDW interpolation. 10. Preparation for field data survey: select test site, data preparation, select sampling method. 11. Field survey: point-like object, measuring coordinates of track routes and surfaces. 12. Download and import field data, compare field data to available datasets. 13. Thematic map creation, export and print thematic maps. | | | | |
| **16. Summative assessment, formative assessment**  Students can receive 0-5 more points during each lecture. Seminar points will be summed at the end of the semester. Students have to participate on at least 10 seminars, therefor he or she can have minimum 0 and maximum 50 points. If the student participates on more than 10 seminars than 10 highest seminar points will be summed (cumulative points) at the end of the semester. Percentage of cumulative and maximum points will be calculated.  Grading percentages may vary according to the position of the Gauss curve, but the approximate ranges are the followings:   * just less than 50% = 1 * 50 to 64.99% = 2 * 65 to 74.99% = 3 * 75 to 84.99% = 4 * 85+% = 5   Attendance at all activities will be monitored. Students who fail to attend the activities, or to complete the summative or formative assessment specified above, will not gain the credit for the course. | | | | |
| **17. Reading assignments:**   1. Qgis tutorials (<http://qgis.org/en/docs/index.html>) 2. Graser, A. (2016) *Learning Qgis*. (3rd ed.) Packt Publishing | | | | |
| **18. Recommended texts:**   1. Bruy, A. & Svidzinska, D. (2015) *Qgis by example*. Packt Publishing 2. Theide, R. & Sutton, T. & Duster, H. (2013) *The quantum GIS Training Manual*. Locate Press | | | | |
| **Date** | 13 November, 2017 | **Prepared** |  | |
| István Péter KOVÁCS PhD  instructor-in-charge | |
| **Endorsed** | | |  | |
| András TRÓCSÁNYI PhD leader of the program | |