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|--|-------------------|--------------------------|--------------|
| <b>Study programme: MAS Geography</b>  |                   |                          |              |
| <b>Course title: Advanced methods of Geospatial data acquisition, processing and visualization</b>   |                   |                          |              |
| <b>Teacher(s): <a href="#">dr Satmari Jožef</a></b>  |                   |                          |              |
| <b>Status: elective</b>  |                   |                          |              |
| <b>ECTS: 6</b>   |                   |                          |              |
| <b>Requirements: none</b>  |                   |                          |              |
| <b>Learning objectives</b>   |                   |                          |              |
| Learning advanced techniques and functions of GIS in the process of acquiring, processing, classification, investigating and visualization of geospatial data.<br>Through a series of practical examples, students learn about all stages of data analysis, from the terrain measurements and remote sensing, techniques of automated classification, to the final visual presentation of results. |                   |                          |              |
| <b>Learning outcomes</b>   |                   |                          |              |
| By completing this course, the students gain insight into a large number of applied, advanced methods and functions used in all phases of geospatial analysis, from acquiring, to processing and visualisation of data.  |                   |                          |              |
| <b>Syllabus</b>  |                   |                          |              |
| <i>Theoretical part:</i>   |                   |                          |              |
| Remote sensing as a source of geospatial data;<br>Automated image analysis;<br>Transfer and display of data from GPS devices;<br>Techniques of automated digitalization;<br>3D digital terrain model generation from stereoscopic images;<br>Methods of digital terrain model analysis;<br>Examples of modelling natural phenomena in GIS;<br>Anaglyph visualisation.                              |                   |                          |              |
| <i>Practical part:</i>   |                   |                          |              |
| Supervised and unsupervised image analysis, advanced methods of digital elevation model analysis, using highly precise GPS devices for sub-meter accuracy measurements, with various signal-correcting techniques.   |                   |                          |              |
| <b>Literature</b>  |                   |                          |              |
| Burrough, P., McDonnell, R. (2006) Principi geografskih informacionih sistema. Građevinski fakultet, Beograd.<br>Shekhar, S., Xiong, H.(Eds.) (2008) Encyclopedia of GIS, Springer<br>Longley, P., Goodchild, M., Maguire, D., Rhind, D. (2010), Geographic Information Systems and Science (third edition), John Wiley & Sons   |                   |                          |              |
| <b>Weekly teaching load</b>  | <b>Lectures:2</b> | <b>Exercises:1</b>       |              |
| <b>Methods of Teaching</b>   |                   |                          |              |
| Lectures, Illustration and Demonstration, Practical skills, seminary paper.  |                   |                          |              |
| <b>Grading method (maximu 100 points)</b>  |                   |                          |              |
| <b>Pre-examination assignments</b>   | points            | <b>Final examination</b> | points       |
| Activities during lectures   | <b>0-5</b>        | Written examination      |              |
| Activities during exercises  | <b>0-5</b>        | Oral examination         | <b>30-45</b> |
| Colloquia  | <b>10-20</b>      | .....                    |              |
| Seminar paper  | <b>0-25</b>       |                          |              |