

## Tárgy neve: 3D modelling in geoinformatics

Tárgyfelelős neve: Dr. Albert Gáspár

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- Complex knowledge of the general geographical, cartographic, planning, mathematical and informatic principles, rules, relationships required for the practice of geoinformatics, especially in the following topics: geographical and spatial data collection at various scales; knowledge of geographical and spatial processes; collection, editing and analysis of spatial data; photogrammetry, geostatistics, modelling, visualization

- Comprehensive knowledge and understanding of the key relationships and concepts in the field of geoinformatics, in particular in the following areas: geolocation data collection technologies, 2- and 3-dimensional geoinformatics modelling, geovisualization, spatial data infrastructures, geoinformatics programming and application development, vector and raster geoinformatics

b, abilities

- Ability to interpret geographical/spatial phenomena, processes and information, and to plan, organize, manage and control processes in the field of geoinformatics.

- Ability to collect data independently and organize spatial data into a database, as well as to organize the data with the tools of geoinformatics. Ability to perform operations and models with independently organized databases.

c, attitude

- Monitors professional and technological developments in the field of geoinformatics and the labour market trends.

- Committed to environmentally conscious behaviour in his/her field and laboratory activities.

- Committed to adhering to and making others adhere to quality requirements

d, autonomy and responsibility

- Independence regarding the thorough examination and elaboration of professional issues and processes.

- Feels responsible for meeting and making others meet the deadlines. He/she is responsible for his/her work and for his/her co-workers' work in projects.

- With his/her knowledge and skills of geoinformatics, he/she cooperates responsibly with professionals in other fields.

Az oktatás tartalma: The aim of the course is to learn about the relationship between three-dimensional modelling and geoinformatics (geodatabases, data models, etc.) and to apply the knowledge in practice. The course is practice-oriented. The focus is on the simulation of problems and tasks encountered in real geoinformatics modelling. Task resolution highlights the essence of operations, which is software independent. The student is not asked to give the exact answer to the question, but to solve the problem with the correct result. 3D modelling in the course means modelling phenomena that are either continuous in space or fill the space under study (e.g. temperature, air pressure, soil, rocks, contamination, groundwater, etc.).

A számonkérés és értékelés rendszere: practical course mark based on course work.

Kötelező irodalom:

- Albert, G.: *3D modeling in GIS (lecture notes)*, 117 p., 2016
- Abdul-Rahman, A., & Pilouk, M. (2007). *Spatial data modelling for 3D GIS*. Springer Science & Business Media. ISBN 978-3-540-74166-4

Ajánlott irodalom:

- El-Sheimy, N., Valeo, C., & Habib, A. (2005). *Digital terrain modeling: acquisition, manipulation, and applications*. Artech House. ISBN 978-1580-539210

- Lee, J., & Zlatanova, S. (Eds.). (2008). *3D geo-information sciences*. Springer Science & Business Media. ISBN: 978-3-540-87394-5