

Tárgy neve: Digital terrain models

Tárgyfelelős neve: Dr. Telbisz Tamás

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- Geographic and spatial data collection at different scales, use of cartographic procedures
- Geostatistics, 2- and 3-dimensional geographic modelling, visualization

b, abilities

- Perform operations and model building with self-organised databases.
- Ability to creatively and methodically process, evaluate, interpret and analyse measurement results and draw conclusions from them.
- Ability to use the professional vocabulary of geoinformatics in his/her mother tongue and English.

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.
- Accepts and adheres to the ethical principles of work and organizational culture, especially with regard to the copyright related to geoinformatics.
- 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.
- In accordance with his/her professional competencies, he/she can be assigned with responsibility for development and operation in geoinformatics systems.

Az oktatás tartalma:

Introduction to digital terrain models.

Concept of digital terrain models, varieties, GRID and TIN models.

Application of digital terrain models.

Different base data to create digital terrain models (contour maps, GPS, radar, LiDAR).

DTM databases (SRTM, ASTER, GMTED, national datasets).

Digitization practice.

Theory of interpolations (Linear interpolation, kriging, etc.)

DTM visualisations.

Derived maps (slope, aspect, curvature, etc.) practice and theoretical background.

DTM error types, detection and correction.

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

Kötelező irodalom:

- Li Z, Zhu C, Gold C (2005): Digital Terrain Modeling. Principles and Methodology. CRC Press, 340 p., ISBN 9780415324625.
- Rabus, B., Eineder, M., Roth, A., Bamler, R. (2003): The shuttle radar topography mission – a new class of digital elevation models acquired by spaceborne radar. ISPRS Journal of Photogrammetry and Remote Sensing, 57(4):241-262.

Ajánlott irodalom:

- Burrough, P.A. – McDonnell, R.A (1998): Principles of Geographical Information Systems. – Oxford University Press, Oxford, 306 p., ISBN: 9780198742845

- Florinsky IV (2016): Digital Terrain Analysis in Soil Science and Geology. Academic Press, Elsevier, ISBN 978-0-12-804632-6
- Maune DF, Nayegandhi A (edt) (2007): Digital Elevation Model Technologies and Applications: The DEM Users Manual. ASPRS, 2nd edition, ISBN 978-1570830822
- Wilson J. P., Gallant J. C. (eds.) (2000): Terrain Analysis: Principles and Application. John Wiley & Sons, USA