Tárgy neve: Hydrologic modelling

Tárgyfelelős neve: Dr. Telbisz Tamás
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; use of cartographic processes; knowledge of geographical and spatial processes; collection, editing and analysis of spatial data; modelling
- Knowledge of the current theories, models and literature of geoinformatics based on scientific results. He/she is aware of the possible development directions and limits of the field of geoinformatics.
b, abilities
- Ability to interpret complex professional problems in the field of geoinformatics, to explore the necessary theoretical and practical background and to solve problems.
- 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
- Committed to environmentally conscious behaviour in his/her field and laboratory activities.
- Monitors professional and technological developments in the field of geoinformatics and the labour market trends.
- Committed to adhering to and making others adhere to quality requirements.
- Open and committed to critical feedback and evaluation based on self-assessment.
- Accepts and adheres to the ethical principles of work and organizational culture, especially with regard to the copyright related to geoinformatics.
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:
Hydrological data types (precipitation, infiltration evapotranspiration, runoff).
Types and aims of hydrological models.
Drainage network derivation from DTMs.
Calculation of drainage basin characteristics.
Simple rainfall-runoff model creation using DTM.
Project work.

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.
- O'Callaghan, J.F., Mark, D.M., 1984: The extraction of drainage networks from digital elevation data. – Computer Vision, Graphics and Image Processing, 28, 323–344.

Ajánlott irodalom:

- Freeman, T.G., 1991: Calculating catchment are with divergent flow based on a regular grid. – Computers and Geosciences, 17(3), 413–422.
- Kiss, R. Determination of drainage network in digital elevation models, utilities and limitations. Journal of Hungarian Geomathematics, 2, 16-29., 2004
- Moore, I.D., Grayson, R.B., Ladson, A.R., 1991: Digital terrain modelling: A review of hydrological, geomorphological, and biological applications. – Hydrological Processes. 5(1), 3–30.
- Burrough, P.A. – McDonnell, R.A: Principles of Geographical Information Systems. – Oxford University Press, Oxford, 306 p., 1998 ISBN: 9780198742845
- Tarboton, D.G., 1997: A New Method for the Determination of Flow Directions and Contributing Areas in Grid Digital Elevation Models. – Water Resources Research, 33(2), 309–319.