Tárgy neve: Geovisualization

Tárgyfelelős neve: Dr. Török Zsolt Győző
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: use of cartographic processes, visualization
- 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.
- Comprehensive knowledge of the problem-solving principles, methodology and processes of the planning, development and operation processes of the geoinformatics field, especially in the following areas: geovisualization
- Knowledge of the basic processes of vision, brain imaging, spatial orientation and navigation
- Knowledge and use of experimental tools and methods for testing the usability of geovisualisation interfaces
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 recognize and apply new problem-solving methods and procedures in his/her field and apply what he/she has learnt in a diverse, multidisciplinary environment.
c, attitude
- Open to professional cooperation with professionals working in related fields.
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 course presents the fundamentals of human cognitive visualization as an essential part of geoinformatics technology. The effective use of geoinformation systems depends on visual interfaces, maps and other cartographic representation forms. Visualization is interpreted as a cognitive process supported by external representation. Explore human vision, brain processes of human visual imagery, the processing and pathways of spatial information. Object recognition, the functions of the hippocampus in the human memory system. Cognitive map and spatial cognition: orientation, wayfinding, navigation. Study supporting human navigation through a visual interface. Pattern recognition and the horizontal organization of the map. Visual hierarchy and directing visual attention. Map user, use and usability studies: tools, methods and research results. UI and UX research in geoinformatics: interactive and adaptive technologies.

A számonkérés és értékelés rendszere: oral and/or written exam.

Kötelező irodalom:

- Colin Ware 2011: *Information Visualization: Perception for Design. Interactive Technologies.* Wiley, New York. ISBN: 1558608192
- MacEachren, A.M. 2004: *How Maps Work: Representation, Visualization and Design.* (New York: Guilford Press. ISBN: 0898625890
- Keim, Daniel, Jörn Kohlhammer, Geoffrey Ellis, Mansmann 2010: *Mastering the Information Age. Solving Problems withVisual Analytics*. Eurographics Association, Goslar. ISBN: 9783905673777

Ajánlott irodalom:

- Bertin, Jacques 1983: *Semiology of Graphics. Diagrams, networks, maps.* Univ. of Wisconsin Press, Madison. ISBN: 9780299090609.
- Tufte, Edward 2001: *Envisioning information*. Plenum Press, Boston, ISBN: 9780961392116
- Çöltekin, A., Bleisch, S., Andrienko, G., Dykes J. (2017). Persistent Research Challenges in Geovisualization. *International Journal of Cartography* (3) 115-139.
- Griffin, A. L., White, T., Fish, C., Tomio, B., Huang, H., Sluter, C. R., … Picanço, P. (2017). Designing across Map Use Contexts: A Research Agenda. *International Journal of Cartography*, 3(sup1), 90–114.
- Török, Zsolt Győző – Török, Ágoston 2019: Cognitive Data Visualization—A New Field with a Long History. In: Klempous, Ryszard - Jan Nikodem - Péter Zoltán Baranyi (eds.): *Cognitive Infocommunications, Theory and Applications*, Springer International, ISBN: 978-3-319-95995-5