

Tárgy neve: High resolution remote sensing P

Tárgyfelelős neve: Dr. Jung András

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- Comprehensive knowledge of the problem-solving principles, methodology and procedures of the planning, development and operation processes of the geoinformatics field, especially in the following areas: database management, Big Data - data mining, primary and secondary data collection, earth observation, spatial and temporal data analysis, processes modelling and simulation, network analysis, 3-dimensional modelling, geovisualization, geostatistical solutions, web geoinformatics services, development of spatial services, geoinformatics programming, development of GIS applications, open-source GIS.
- Has knowledge of the specific tools of the geoinformatics field, is able to apply field survey procedures, data management and analysis, and representation solutions. Knows and uses spatial data collection technologies, available databases and GIS software, as well as open-source and commercial geoinformatics software, cloud-based geoinformatics solutions.
- Understand, know and apply the mobile field, laboratory and practical possibilities, tools and methods of remote sensing.

b, abilities

- Ability to creatively and systematically process, evaluate, interpret, analyse and draw conclusions from measurement results.
- Ability to collect data independently and organize spatial data into a database, as well as to organize the data with the tools of geoinformatics. Able to perform operations and model with independently organized databases.
- Is able to recognize and apply new problem-solving methods and procedures in his / her field and apply what he / she has learned in a diverse, multidisciplinary environment.

c, attitude

- Accepts and adheres to the ethical principles of work and organizational culture, especially with regard to the copyright related to geoinformatics.
- Open to professional cooperation with professionals working in related fields.
- 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: During the internships, students will learn the basics, tools, and methods of near-ground remote sensing. With the related software and hardware infrastructure. They perform imaging and non-imaging optical data collection in the form of independent measurements, master multispectral and hyperspectral measurement techniques, learn about the application possibilities of different platforms (ASD FieldSpec, QMini, UHD185, multicopter, Flir, etc.). The exercises provide a detailed insight into the data collection process of field spectroscopy and its role in the field of ground-truthing. We review in detail the near-earth device system and multidisciplinary position of high-resolution active and passive remote sensing. We deal separately with industrial applications and their scientifically demanding approach. Using statistical and image processing software, students evaluate their measurement results and their usability. After completing the exercises, the student will be able to assemble the hardware, software and method elements necessary for his / her independent scientific work.

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

Kötelező irodalom:

- Vohland, M., A. Jung, eds. (2020) Hyperspectral Imaging for Fine to Medium Scale Applications in Environmental Sciences. Remote Sens. 12(18), 2962; <https://doi.org/10.3390/rs12182962>
- pdf materials published by the instructor on ELTE-CANVAS system

Ajánlott irodalom:

- Rossel, R. A. V., McBratney, A. B., Minasny, B. (Eds.). (2010) Proximal soil sensing. Springer Science & Business Media. ISBN 978-90-481-8859-8
- McCoy, Roger M. (2005) Field methods in remote sensing. Guilford Press, ISBN 9781593850791