Tárgy neve: High Resolution Remote Sensing L

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 processes 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, modelling and simulation of processes, network analysis, 3-dimensional modelling, geovisualization, geostatistical solutions, web-based geoinformatics services, spatial services development, geoinformatics programming, development of geospatial applications, open-source geoinformatics.
- Knowledge of the specific tools of geoinformatics, ability to apply field survey procedures, data management and analysis, and visualization solutions. Knowledge and use of spatial data collection technologies, available databases and spatial information software, as well as open-source and commercial geoinformatics software, cloud-based geoinformatics solutions.
- Understandings, knowledge and application of mobile field, laboratory and practical materials, tools and methods of geoinformatics.
b, abilities
- 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.
- 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
- 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: This course introduces the principles, the methods and the techniques of high-resolution remote sensing. The imaging and non-imaging optical data acquisition workflow will be discussed with special attention to multi- and hyperspectral measurements. Different platforms (handheld, UAV, airborne, underwater, etc.) will be shown with their application areas. The theory and application of field spectroscopy will be discussed in detail, even its importance in proximal and satellite remote sensing. An overview will be given about active and passive high resolution remote sensing systems in a multidisciplinary context. The state-of-the-art of science and technology in a domestic and international approach will be presented, while highlighting the future developments. Special attention will be given to new scientific results, industrial applications and comparative studies. After completing this course, the students will be able to select and apply high resolution remote sensing techniques and methods to support their own scientific work, research and geospatial evolvement.

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

Kötelező irodalom:
- He, Yuhong, and Qihao Weng, eds. (2018) High spatial resolution remote sensing: data, analysis, and applications. CRC press, ISBN 9780429470196
- Thenkabail, Prasad S., and John G. Lyon, eds. (2016) Hyperspectral remote sensing of vegetation. CRC press, ISBN 9781138066250
- McCoy, Roger M. (2005) Field methods in remote sensing. Guilford Press, ISBN 1-59385-080-8

Ajánlott irodalom:
- Vohland, M. and Jung, A. (Eds). (2021) Hyperspectral Imaging for Fine to Medium Scale Applications in Environmental Sciences. MDPI, ISBN 978-3-0365-0878-8
- Toro, F. G., Tsourdos, A. (Eds.). (2018) UAV sensors for environmental monitoring. MDPI Publishing. MDPI, ISBN 978-3-03842-754-4
- Gonzalez, F. and Tsourdos, A. (Eds) (2018) UAV or Drones for Remote Sensing Applications (Volume 1). MDPI, ISBN 978-3-03897-092-7