

Tárgy neve: Drones in field spectroscopy

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.
- Knowledge of the specific tools of the geoinformatics field, ability to apply field survey procedures, data management and analysis, and representation solutions. Knowledge and use of spatial data collection technologies, available databases and GIS software, as well as open-source and commercial geoinformatics software, cloud-based geoinformatics solutions.
- Understanding, knowing and applying the mobile field, laboratory and practical applications, 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.
- Ability 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.
- 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 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: The declining size and the increasing performance of portable field devices and the proliferation of multicopters have had a significant impact on field data collection, documentation, and mapping. GIS specialists also perform field work, including the production, verification or qualification of measurement results. Multicopters and other rigid-wing unmanned aerial platforms will play a significant role in this data collection process. Their applicability has accelerated tremendously, and their development and spread are unstoppable. Acquiring the theoretical and practical knowledge necessary for use and application is the basic goal of the course. A part of the training is to perform independent flight exercises, to get acquainted with the data collection and processing workflows. Understanding the operation of drone sensors (thermal, multi- and hyperspectral, Lidar, etc.), mastering its application possibilities.

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

Kötelező irodalom:

- Elliott, Z.P (2019) The Drone Pilot Handbook - ISBN-13-978-1675964255
- pdf materials published by the instructor on ELTE-CANVAS system

Ajánlott irodalom:

- Calafate, C. T., Tropea, M. (Eds.) (2020) Unmanned Aerial Vehicles Platforms, Applications, Security and Services. MDPI Publishing. ISBN 9783039367092
- www.easa.europa.eu
- ASA Test Board (2020) Remote Pilot Test Prep 2021. ISBN13(EAN): 9781619549753