

Tárgy neve: Topography

Tárgyfelelős neve: Dr. Zentai László

Tárgyfelelős tudományos fokozata: DSc

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- Knowledge in the structure and content of topographic maps and map databases;
- Knowledge of the tools and processes of topographic survey and database construction;
- Familiar with Hungarian state topographic map databases and the possibilities of using state data.

b, abilities

- Ability to select the most appropriate state topographic map data for the task in hand, depending on the complexity of the task;
- Ability to participate in the creation of topographic maps and map databases.

c, attitude

- The acquisition of a map database approach helps to develop an appropriate attitude to professional cooperation with professionals working with state cartographic data 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 subject of geodesy. Positioning, units of measure. Locating points. Gravitational space, surfaces, elevation. Surfaces replacing the Earth. Projections, distortions. Sheet systems. Measurements, geodetic problems on plane. Measurement errors, accuracy, propagation of error. Point system of surveying. Networks. Marking points on the terrain. Geodetic instruments. Basics of optics. Theodolites. Horizontal measurement of angle. Methods of measuring. Orientation tools. Regular errors of theodolite. Positioning of points. Methods, calculations, building networks. Measuring distances. Optical tools of telemetry. Trigonometry. Measurement errors. Measuring elevations. Methods of determining elevation differences. Trigonometric, geometric and physical levelling. Levelling by satellites. Global positioning in geodesy. Types of GNSS (GPS, GLONAS, GALILEO, local navigation systems). Measurement methods and errors. GNSS services (permanent networks, GPRS). Detailed surveying. Instruments (Cartesian system, polar system, use of GPS, elevations, longitudinal and cross profiles, point clouds of mobile mapping systems). Cartographic visualization methods. Analogue and digital maps. Cartographic data models. Cadastral base maps and their content. Digital base maps. Standards and regulations. Surveying public utilities. Public utility maps.

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

Kötelező irodalom:

- B. Hofmann-Wellenhof and H. Moritz, Physical Geodesy, Springer-Verlag Wien, 2005.
- Lu, Zhiping, Qu, Yunying, Qiao, Shubo: Geodesy, Introduction to Geodetic Datum and Geodetic Systems, Springer, 2014.
- Wolfgang Torge, Jürgen Müller: Geodesy, Walter de Gruyter, 2012

Ajánlott irodalom:

- Günter Seeber: Satellite Geodesy, Walter de Gruyter, 2003
- Peter J.G. Teunissen, Alfred Kleusberg: GPS for Geodesy, Springer Science & Business Media, 2012