

Tárgy neve: Spatial energy planning

Tárgyfelelős neve: Dr. Munkácsy Béla

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- 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.

- Knowledge in the main characteristics of renewable energy sources, the operating principles of the technologies that use them and the spatial representation of their main technical characteristics.

- Understands the principles and interrelationships of sustainable energy systems and is able to place technologies in the modern energy system due to wide perspective

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 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.

- 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

c, attitude

- Committed to environmentally conscious behaviour in his/her field and laboratory activities.

- Monitors professional and technological developments in the field of geoinformatics and the labour market trends.

- Committed to adhering to and making others adhere to quality requirements.

- Accepts and adheres to the ethical principles of work and organizational culture, especially with regard to the copyright related to geoinformatics.

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

Az oktatás tartalma: The purpose of this subject is to analyse the energy technologies described by the instructor on a project-based basis and to learn how to solve problems with geospatial support. Its main components are:

Section 1:

Energy systems (local, regional, national), trends, main development directions;

Characteristics of renewable energy sources and energy conversion technologies, their relationship to geographical space;

Case studies on the relationship between energy and GIS;

Environmental and energy-related (spatial) databases;

Section 2:

Geo-database construction, data management;

Spatial optimization of resources, site selection;

Modelling, production of statements: energy balances, geostatistics

Section 3:

Project work: self-employment with the chosen technology/plot, with the possibility of consultation;

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

Kötelező irodalom:

- Bent Sørensen: Renewable Energy. Physics, Engineering, Environmental Impacts, Economics and Planning. Academic Press. 1056 p. 2017 ISBN: 9780128026106
- Stoeglehner, G. (2020). Integrated spatial and energy planning: a means to reach sustainable development goals. Evolutionary and Institutional Economics Review. doi:10.1007/s40844-020-00160-7

Ajánlott irodalom:

Publications from the following journals:

- Renewable and Sustainable Energy Reviews;
- International Journal of Energy Planning and Management;
- Journal of Cleaner Production;