TANTÁRGYI ADATLAP
SUBJECT DATASHEET

GEOINFORMATICS

BMEEOFTMKG1

I. COURSE DESCRIPTION

1. SUBJECT DATA

Course name
GEOINFORMATICS

Course code	BMEEOFTMKG1	***Course type***	Contact lessons

Kurzustípusok és óraszámok

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	1

Type of assessment
mid-term grade

Number of credits
4

Course leader

Name	*Position*	*Email adress*
Dr. Szabó György	associate professor	szabo.gyorgy@emk.bme.hu

Organizational unit for the subject
External department

Subject website
https://edu.gtk.bme.hu

Language of teaching
magyar - HU

Curriculum role of the subject, recommended semester
Programme: **Regionális és környezeti gazdaságtan MSc**
Subject Role: **Kötelező**
Recommended semester: **2**

Programme: **Regionális és környezeti gazdaságtan részidős képzés őszi kezdés**
Subject Role: **Kötelező**
Recommended semester: **1**

Programme: **Regionális és környezeti gazdaságtan részidős képzés tavaszi kezdés**
Subject Role: **Kötelező**
Recommended semester: **2**

Pre-requisites

strong	Nincs
weak	Nincs
paralell	Nincs
exclusive	Nincs

1.13 A tantárgyleírás érvényessége / Validity of the Subject Description
Approved by the Faculty Board of the Faculty of Economic and Social Sciences. Valid from September 1, 2019

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2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The objectives for this course include both content and skills of geoinformatics to modeling and analysis of the natural and built phenomena of the environment. Upon completion of this course, students will understand the structure of and be able to design and execute basic GIS analysis projects. In practice, students will be able to collect and assess location based geographic data, organize and store that data, perform basic analysis functions on that data and design effective models to represent built-up and natural environmental phenomena. The course will cover the whole GIS production process from data acquisition to editing, analysis, and visualiza-tion. The course itself is divided into two equally important parts: lectures, which introduce the theory of geoin-formatics, and lab exercises, which help you to familiarize yourself with many aspects of the standardizes GIS software environment. The lectures discuss concepts, data, tools, and major aspects of assignments. The labora-tory sessions introduce the geospatial data and software tools needed for accomplishing the assignments.

Learning outcomes

Knowledge

1. knows the elements of geoinformatics theory,
2. the key principles of location based environmental analysis,
3. knows the procedures on location based intelligence and the ways of their description,
4. knows the basic steps of digital representation of built-up and natural environment,
5. knows the basic spatial data capturing, spatial analysis and visualization technic,

Ability

1. create the structural model of our urban and rural environment,
2. definie spatial indicators to analyze the complex interaction between the nature, in-frastructure, socity and culture,

Attitude

1. open to use geospatial tools,
2. makes effort to perform relevant decision support analysis.

Autonomy and responsibility

1. individually capable of modelling space related phenomena and realizing the dependencies,
2. individually capable of performing basic spatial analysis,
3. individually capable of using heterogeneous spatial data bases,
4. uses systematized thinking approach.

Methodology of teaching

Lectures and written communication, use of ICT tools and techniques. In-class discussions, calculations and analyses.

Materials supporting learning

- Az előadások prezentációinak anyaga, amely a megfelelő időpontban a hallgatók által hozzáférhetővé válik.
- Slideshows of the lectures which will distributed at appropriate times throughout the semester.
- Az aktuális irodalmi lista az első órán kerül ismertetésre.
- The current literature list will be distributed in the first lesson.

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

Assessment of the learning outcomes described under 2.2. shall be based on mid-term grading.

Performance evaluation methods

Detailed description of assesments during the term: Students shall submit three lab assignments and one complex project reflecting their knowledge and skills.

Proportion of performance evaluations performed during the diligence period in the rating

- **Lab practice**: 30%
- **written assignment**: 70%
- **total**: 100%

Proportion of examination elements in the rating

- :

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Grading

Excellent	90-100
Very good	80-89
Good	70-79
Satisfactory	60-69
Pass	50-59
Fail	< 50

Correction and retake

Retakes and make-ups are regulated by the university's Code on Education and Examination. (1) Of the three lab assessments, cannot be retake. (2) These may be made up for or improved on one count, during the make up period. In case of re-submission or late submission,
the new score will overwrite any previous scores obtained. (3) Should the student fail to obtain a passing grade as specified in (2), they may once again re-submit one written assignment, which will be evaluated for a fee.

Study work required to complete the course

42

68

10

120

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by dr. Lógó Emma, Vice Dean for Education. Valid from September
1, 2019.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics discussed during the semester

Subject includes the topics detailed in the course syllabus to ensure learning outcomes listed under 2.2. can be achieved. Timing of the topics may be affected by calendar or other circumstances in each semester.

1 Introduction, Global Overview of GIS Techniques
2 Geographic Data Modeling
3 GIS applications, case studies
4 Practical introduction to the used GIS software
5 Project proposal for the semester project, Managing GIS
6 GIS data collection technologies, spatial data creation
7 Earth observation, Global- , Regional-, National Spatial Data Infrastructure
8 The GeoWEB, World, EU, HU data sources
9 Visualization, Cartography and map production
10 Spatial analysis : Society, Economy, Infrastructure, Environment
11 Spatial analysis : 3D terrain modeling
12 Spatial analysis : Land use, Land cover monitoring
13 Complex spatial analysis, decision support
14 Semester project presentation

Lecturers participating in teaching

Mostafizur Rahman PhD hallgató – PhD Student

Approval and validity of subject requirements

Part I-III of the Subject Form is to be approved by the Head of Department named under 1.8.