

I. Subject Specification

1. Basic Data

1.1 Title

Geoinformational systems

1.2 Code

BMEEOFTDT72

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Seminar	2

1.5 Evaluation

Exam

1.6 Credits

3

1.7 Coordinator

name	Dr. György Szabó
academic rank	Associate professor
email	szabo.gyorgy@emk.bme.hu

1.8 Department

Department of Photogrammetry and Geoinformatics

1.9 Website

<https://epito.bme.hu/BMEEOFTDT72>

<https://fiek2.mywire.org/course/view.php?id=2490>

1.10 Language of instruction

english

1.11 Curriculum requirements

Ph.D.

1.12 Prerequisites

Basic knowledge of database management, elementary geospatial software application experience required, python language experience can be useful.

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

Within the framework of the course, students solve independent research tasks related to their PhD theme.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. understand the main principles of location-based environmental analysis,
2. know the processes of location based environmental phenomena and how they are described,
3. know the steps of digital representation of the built and natural environment,
4. familiar with spatial data capture, spatial analysis and visualization techniques

B. Skills

1. to create a structural spatial model of our urban and rural environment,
2. create indices for the analysis of the complex interaction between nature, infrastructure, society and culture, spatial indicators

C. Attitudes

1. open to the use of geospatial tools, to produce new scientific results
2. make efforts to carry out relevant decision support analyses

D. Autonomy and Responsibility

1. independently able to model spatial phenomena and realize their relationships,
2. independently capable of basic spatial analysis,
3. independently capable of using heterogeneous spatial databases,
4. systematic thinking when examining spatial environmental phenomena and sustainability

2.3 Methods

Lectures, workshops , course discussion, professional project report and scientific paper composition

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Entry test of participants Requirements, methods, resources
2.	Location based data driven decision support in the XXI. century
3.	Reserach paper requirements, sample papers
4.	GS based project planing framework
5.	Consultation
6.	Consultation
7.	Consultation
8.	Consultation
9.	Consultation
10.	Mid-semester report
11.	Consultation
12.	Consultation
13.	Consultation
14.	Final delivery of the report and paper

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

Study materials, tutorials on the webpage of the course

2.6 Other information

2.7 Consultation

This Subject Datasheet is valid for:

Inactive courses

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

The evaluation of the semester's work is carried out in the form of an exam with the oral defense of the following written works prepared during the semester:

1. **Scientific paper:** Writing a GIS based, location specific scientific publication related to PhD research in accordance with the published content and form requirements
2. **Project specification:** Develop a technological project framework related to PhD research, business application based on geospatial system, with special regard to the specification of the information products to be created, the description of the range of basic data required and the cost/benefit analysis of the system to be built

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
semester activity	SA	A.1-A.4; B.1-B.2; C.1-C.2; D.1-D.4

Oral exam, OE, Scientific paper, Project technical report

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
SA	20
OE	80%

Sum 100%

3.4 Requirements and validity of signature

Active semester work are required

Delivery of the mid-semester evaluation report

3.5 Grading system

Grade	Points (P)
excellent (5)	>80
good (4)	70-79
satisfactory (3)	60-69
passed (2)	>=50
failed (1)	<50

3.6 Retake and repeat

Regulated by BME Code of Studies

3.7 Estimated workload

Activity	Hours/semester
Sum	90

3.8 Effective date

1 September 2022

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Inactive courses