



# Experiences on Reuse and sharing of e-Learning courses in GI Science education (eduGI)

**GIS OPEN 2007**  
**Székesfehérvár, March 12-14.**





# COURSES

- **Project management (UNIV. MÜNSTER)**
- **GI standards (UNIbw MÜNCHEN)**
- **Advanced Geospatial data mining (ISEGI-UNL)**
- **Data acquisition and integration (UWH GEO)**
- **Visualization (ITC)**
- **Geographic data bases (advanced) (HAROKOPIO UNIV.)**
- **Virtual excursions in Earth Sciences (UPPSALA UNIV.)**
- **Data quality (TU VIENNA)**

Each partner provides a course, typically to two partners of the network with 15 students each. Standards are : English language, 90 hours workload, 13 online contact lessons, supervision and exams executed by the providing GI institute.





# Importance of the syllabus

- A good syllabus template is a key factor for the success of any e-Learning course (see one example: [http://edugi.uni-muenster.de/eduGI/downloads/08/teaching\\_materials\\_UWH\\_data\\_acquisition\\_and\\_integration.zip](http://edugi.uni-muenster.de/eduGI/downloads/08/teaching_materials_UWH_data_acquisition_and_integration.zip))



**edugi** e-Learning Courses

Home | In brief | Partners | [e-Learning courses](#) | Contact | Internal | Publications

« back

Eight European GI institutions use existing courses and adapt them to the requirements of the e-Learning course exchange. Each partner contributes one course, to be taught on a non-profit exchange basis with the partners.

List of Institutions and Courses

Course	Providing University	Links
Visualisation	ITC International Institute for Geo-Information Science and Earth Observation, Enschede, The Netherlands	Syllabus Teaching materials
Geographic Data Bases (Advanced)	HUA Harokopio University Athens, Greece	Syllabus Teaching materials
GeoSpatial Data Mining	ISEGI Universidade Nova de Lisboa, Instituto Superior de Estatística e Gestão de Informação, Lisboa, Portugal	Syllabus Teaching materials
Project Management	IFGI University of Münster, Institute for Geoinformatic, Münster, Germany	Syllabus Teaching materials
GI Standards	UNI BW BW University Munich, Munich, Germany	Syllabus Teaching materials
Virtual excursions in Earth Sciences	UU Uppsala University, Department Earth Sciences Uppsala, Sweden	Syllabus Teaching materials
Data Quality	TU Department Geoinformation and Cartography, Technical University of Vienna, Austria	Syllabus Teaching materials
Data Acquisition and Integration	UWH University of West Hungary, College of Geoinformatics	Syllabus Teaching materials



# Topics of the syllabus (1)

- **Contacts**

Giving the full name, photo, e-mail and other contact data here we should distinguish the teacher and tutor positions.

- **Goals**

This section introduces the main topics, methods and principles of the course delivery.

- **Contents**

Here we should list the module names adding to them explanation about the characteristics of the material. It is a good practice, if we try to group the modules into "Parts" by the logic of whether they have more theoretical, practical or analyzing topics. Let's see an example for the





## Topics of the syllabus (2)

- **Methods**  
Here we should list the key issues necessary for the successful completion of the course. Typically here is mentioned the methods of communication and exam, the expected workload, etc.
- **Participants**  
In this section we should describe exactly what are the pre-requirements for the students, and what is the primary target group.
- **Organization**  
This part mainly is about the time schedule, indicating the duration, the date of the synchronous sessions, the date of the final exam. Also here is mentioned the planned number of participants.
- **Successful participation**  
In this section we should give clear regulations for the successful completion of the course. Even we can list here the tasks with the deadlines.
- **Course preparation**  
Here are listed all the steps which are necessary for start the course. Typically it means that we should organize a test synchronous session and provide (upload) the teaching material to the e-Learning platform, or as an option we can provide some off-line materials (books).
- **Literature**  
Here the required and recommended literature is listed.





## Tasks during the content preparation

- Translation to other language (e.g. Hungarian-English).
- Conversion of plain texts into power point presentations.
- Development of some software for carrying out the practical tasks through Internet (for example a program for coordinate translation between different systems).
- For self assessment we need to work out tasks, assignments. When we think out the assignments we need to consider the amount of time planned for the given module, otherwise the students will not be able to complete each task.
- We need to plan the synchronous sessions and for this we have to prepare special interactive aids (e.g. video, interactive software usage tutorial, etc.)





# Important tools

- Communication with the students (e-mail, voice-mail, announcements)
- Discussion board
- Tools for synchronous sessions
- At the course delivery: tools for handling of different file formats like html, ppt, pdf, doc, mp3, etc.
- The assessment facilities like test manager, upload of tasks.
- Course calendar
- Gradebook, course statistics

## EDUGI004: Data Acquisition and Integration - Tamas Jancso (Docente)

### Content Areas

[Syllabus](#)

[Assignments](#)

[Course Documents](#)

[External Links](#)

### Course Tools

[Announcements](#)

[Glossary Manager](#)

[Course Calendar](#)

[Messages](#)

[Staff Information](#)

[Content Collection](#)

[Tasks](#)

[Course Portfolios](#)

[Send Email](#)

[Check Collection Links](#)

[Discussion Board](#)

[Copy Files to Collection](#)

[Collaboration](#)

[Voice Announcements](#)

[Digital Dropbox](#)

[MyDropBox Suite \(Safe Assignments\)](#)

### User Management

[List / Modify Users](#)

[Remove Users from Course](#)

[Batch Create Users](#)

[Manage Groups](#)

[Enroll User](#)

### Assessment

[Test Manager](#)

[Gradebook](#)

[Survey Manager](#)

[Gradebook Views](#)

[Pool Manager](#)

[Performance Dashboard](#)

[Course Statistics](#)

### Help

[Support](#)

[Contact System Administrator](#)

[Manual](#)

[Quick Tutorials](#)





# Synchronous session

- The synchronous sessions are the central part of each e-Learning course.
- By our experience this method of teaching needs a lot of time from the tutor to be prepared for it. Not only because of the students can ask any aspect from the material, but also because of it needs a good practice from the tutor not to lose the main stream in the material, since the students usually ask about those issues which are not discussed in detail in the teaching material.
- Especially we should avoid those students who want to test the knowledge of the tutor, since it's boring for other on-line session participants who usually want to concentrate on the assignment issues.







# Final exam

- **The final exam of an e-Learning course is a sensitive part, since usually the students should be virtually collected in the same time.**
- **Two options**
  - We can organize the exam in the frame of a synchronous session. The only negative aspect of this type of exam is that some students - who miss this synchronous session - are not able to pass the exam at all. In this case the tutor should consider the possibility to give a chance to take the exam off-line with the help of the local partner tutors of the student's institution.
  - A test session which is open for a limited time (usually 24 hours). In this case each student can find a time window to complete the test. For those who has no time at all in the announced time-frame, the tutor can allow and assign for each student an individual date for the exam.





# TARGET GROUPS

- **Teachers/trainers (higher education)**
- **Students**
- **Adult learners**
- **Persons with special needs**
- **Political decision-makers/administrative staff**
- **Education authorities**
- **Curriculum development specialists**
- **e-learning Industry**
- **The research community**
- **Institutes for Geographic Information**
- **Managers of non-GI institutes targeting the introduction of e-Learning.**





# Structure and content

- The content of one course is organized in modules.
- A complete course in the platform can integrate the following items:  
**explanatory text; main text; exercises; data; questions for auto evaluation; project description; final exam, other materials including images and video, and a students' discussion forum.**
- For each module there are three on-line synchronous sessions where students can interact with tutors and have access to demonstrations, summaries and web links. Students have also access to chat within the platform as well as to forum for the program

Announcements  
Staff Information  
Syllabus  
**Course Documents**  
Assignments  
Communication  
Discussion Board  
External Links  
Tools

**Tools**  
Communication  
Course Tools  
Course Map

Control Panel  
Refresh  
Detail View

DATA ACQUISITION AND INTEGRATION > COURSE DOCUMENTS

**Course Documents**

**Content**  
Syllabus, List of Modules, List of Tutors

**Part 1 - Introduction**  
Introduction

**First Session**  
[Live Classroom](#)

**Part 2 - Data Acquisition methods**  
Data Acquisition Methods

**Part 3 - GIS in data integration**  
Part 3: GIS in data integration

**Second session**  
[Live Classroom](#)



# Conclusions

- We have to find the ways of motivation for the update of the course material
- Preparation for the synchronous session needs a lot of time
- The course delivery is hardly supported in pure html content
- Financial issue: if the courses announced free of charge, even we have to find way to pay for the tutors for the course delivery. The e-Learning method is not a fully automatic process.

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## Modul name: 6. Remote Sensing

### Unit 6. 0.1. Physical Principles

Author: Małgorzata Veróné Wojtaszek

#### 1. Purpose

In the unit 1 of modul you learn some of the fundamental concepts required to understand the process that encompasses remote sensing. It covers in some detail the first three components of this process: the energy source, interaction of energy with the atmosphere, and interaction of energy with the surface.

#### 2. Hardware and software requirements

We don't need any special software.

#### 3. Tasks

We advise you to read the summary using the reference (Modul6\_Unit1\_principles.pdf) and see there are some examples. The material is also divided into an separate topics, like electromagnetic radiation, electromagnetic spectrum, atmosphere, interaction with atmosphere and target. If there are any section, which is not clear, please, use the Internet educational sources to get more detailed information.

#### 4. Allocated time

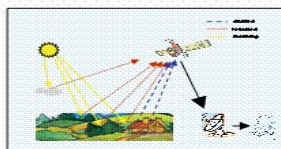
You need approximately 6 hours to review the course material, if the main principles are known. You need 1.5 hours to solve this task.

#### 5. Assessment

You have finished this Unit if you have basic knowledge of remote sensing elements and you understand the process that encompasses remote sensing. It is very important to see what is the connection between them. There are some [questions](#) to help you decide you are ready to start the next Unit.

#### Task: Unit 6.01. Physical Principles

##### What is Remote Sensing?



Remote sensing is the measurement of the acquisition of data about the Earth's surface without contact with it. This is done by sensing and recording reflected or emitted electromagnetic radiation. Remote sensing involves analyzing and applying that information. The process involves the following elements:

- **Energy source** - the first requirement for remote sensing is an energy source which provides electromagnetic energy.
  - **Radiation and the Atmosphere** - as the energy travels from its source to the target, it will come in contact with and interact with the atmosphere it passes through. This interaction may take place a second time (active remote sensing) as the energy travels from the target to the sensor.
  - **Interaction with the Target** - once the energy makes its way to the target through the atmosphere, it interacts with the target depending on the properties of both the target and the

*The physical elements of remote sensing: energy source, radiation and the atmosphere, Interaction with the Target, sensing, analysis and application*





**THANK YOU FOR YOUR ATTENTION !**

**TAMÁS JANCÓSÓ**  
**([t.jancso@geo.info.hu](mailto:t.jancso@geo.info.hu))**

