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**A BLENDED EDUCATIONAL TRAINING
IN SURVEYING AND CADASTRE**


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Organised by:   CHAMBER OF GRADUATED SURVEYORS

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FIG Context - promoting new methods of education

- FIG distributes **information on the topic of e-learning** to the surveying community;
- FIG brings experts together to **share their knowledge** on the topic of e-learning;
- FIG promotes **creating of e-learning networks**, increasing cooperation on the topic of e-learning with other organisations in the field of geosciences;
- FIG encourages their members to **develop and share e-learning contents** within surveying education.

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Why a new approach in teaching?

- quickly flowing of information
- newest emerging technologies

Blended Learning?

- classes where **a part** of the traditional face-to-face instruction is replaced by web-based online learning

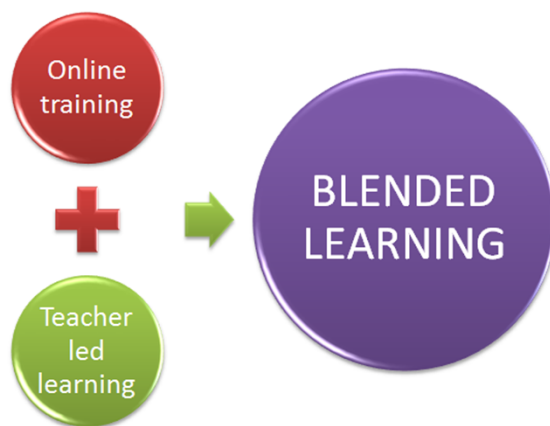


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Our Project – University Network Approach

- in the sustainability period
- 4 Universities & IT Company

four regions of Romania:

- Bucharest-Ifov
- West
- North-East
- Center



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Levels of implementation in the sustainability period

- **BSc** → Specializations:
 - Land Surveying and Cadastre
 - Cadastre and Property Management
 - Geodesy and Geoinformatics
- **MSc** → Specializations:
 - Spatial Planning and GIS for Sustainable Development
 - Geomatics
 - Informational Systems in Cadastre and Real Estate Registration



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| Numar | Domeniu | Nivel |
|-------|---|-----------|
| 1 | APPLICATE CADASTRU 2 - LECTIA 1 | |
| 2 | APPLICATE CADASTRU 2 - LECTIA 2 | |
| 3 | APPLICATE CADASTRU 2 - LECTIA 3 | |
| 4-1 | APPLICATE CADASTRU 2 - LECTIA 4-1 | |
| 5 | APPLICATE CADASTRU 2 - LECTIA 5 | |
| 6 | APPLICATE CADASTRU 2 - LECTIA 6 | |
| 7 | APPLICATE CADASTRU 2 - LECTIA 7 | |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 2 | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 3a | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 3b | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 4 | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 5 | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 6a | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 6a bis | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 6b | Geomatica |
| | Cadastru si aplicatii GIS in zone urbane - anul II Geomatica 7 | Geomatica |

COURSES

SPECIALIZATION

COURSE LEVEL:
BSC/MSC



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Main phases

- Modernization of the **curricula in the field of geodesy**;
- Development of **courses with digital animation**;
- Development of the e-learning project;
- Creating the infrastructure project;
- Loading courses on the e-learning platform;
- Training teachers and students in activities related to the platform;
- Development of **collaborative activities** between students from partner universities.





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Workflow

- the project experts - teachers from the four universities involved – had been trained in how to develop a curriculum complying the quality directives of “The Romanian Agency for Quality Assurance in Higher Education”
- had been established the courses and their structure - that had been partially implemented in an e-learning platform as core subjects for all the university partners
- ICT partner worked with us to develop an appropriate product and provided the AeL platform



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AeL platform capabilities

- teaching and learning;
- testing and evaluation;
- management and monitoring of the entire educational process;
- management of the digital content



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Main Courses - Examples

- Surveying,
- Cadastre,
- Basics of Engineering Surveying,
- Basics on Waves Geodetic Surveying,
- Monitoring of Land and Buildings Deformations,
- Cadastral Information Systems,
- Geometrical Representations of Topographical Surfaces,
- Special Topographic Surveys,
- Topographical Drawing,
- Surveying Instruments and Methods,
- Infographics for Land Surveying,
- Design and Optimization of Geodetic Networks,
- Measurements Processing and Statistics



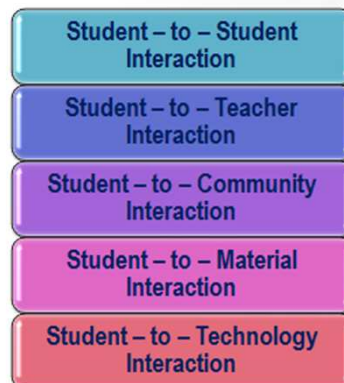
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A Good Blended Learning means INTERACTION:



(Source: <http://www.teachthought.com>)



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e-Learning activities in each applicative module

- **introductory videos** – to capture the attention of students, outlining key aims and the learning outcomes;
- **animations** – short Flash movies made to understand better the phenomena and issues of the domain;
- **synchronous and asynchronous courses** – where the students can interact with their colleagues and teachers;
- **glossaries and FAQs** – essential terminologies and definitions with FAQs explaining common problematical areas;
- **chat rooms** – where can be discussed and solved problem with colleagues;
- **self assessments** – tests and themes to help assessing the gained knowledge.



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Synchronous / Asynchronous Courses?

- in the **synchronous learning** teachers have the full control of the educational process, creating, adjusting and monitoring the training environment;
- in the **asynchronous learning** students can study at their own space and can collaborate in projects. After completing the courses they are tested and evaluated.



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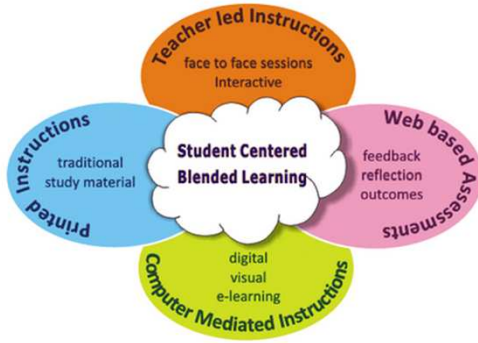




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Student Centered Approach



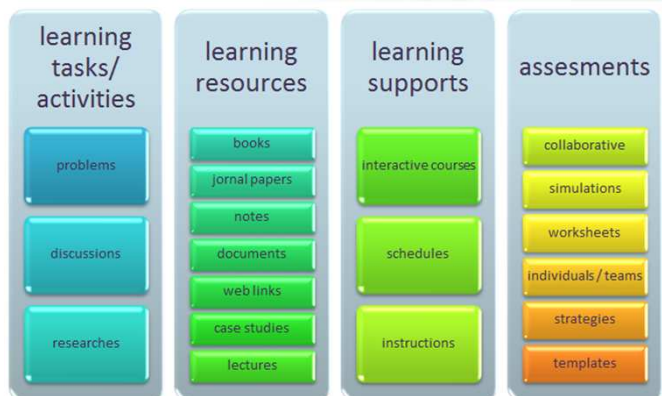
(Source: aviewofeducation.wordpress.com)



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Our Approach





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Thematic Interactive Map: Utility Network

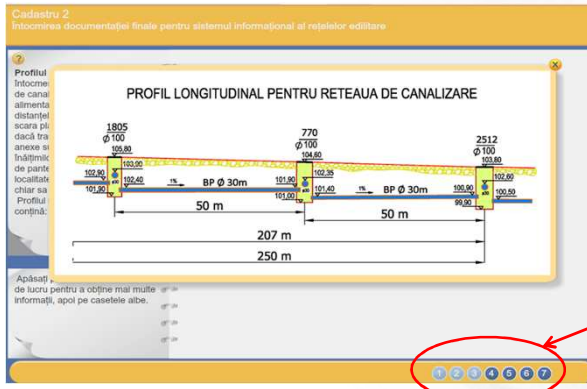
interactive
explanations



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Longitudinal Profile for Sewerage Network



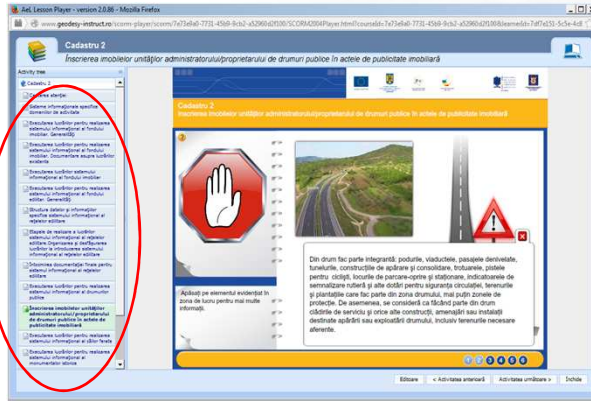


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Interactive Activities

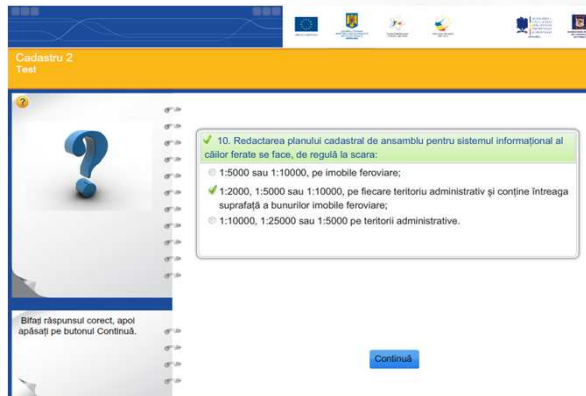
course topic



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Testing Area





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Reports based on topic filter (Surveying courses)

TEACHER NAME

NUMBER OF STUDENTS

COURSE NAME

Report cursuri

| Stare curs | Instructor | Numar | Numar d... | Leccj Inc... | Mod de L... |
|------------|------------------------|-------|------------|--------------|-------------|
| Finalizat | Herban Sorin | 115 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Herban Sorin | 88 | 04/18/13 | 1 | 07/11/13 |
| Finalizat | Chiose Dumbru | 49 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Herban Sorin | 31 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Popa Adrian | 35 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Musat Cosmin Con. | 23 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Chiose Dumbru | 30 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Herban Sorin | 70 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Heghita Aurel Flore... | 40 | 07/11/13 | 18 | 07/11/13 |
| Finalizat | Heghita Aurel Flore... | 40 | 07/11/13 | 4 | 07/11/13 |
| Finalizat | Herban Sorin | 23 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Oriu Cristian | 165 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Sten bt adrian I | 18 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Marta Aurel Flore... | 14 | 07/11/13 | 1 | 07/11/13 |



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Reports based on teacher name filter

TEACHER NAME

NUMBER OF ACTIVE STUDENTS

COURSE NAME

Report cursuri

| Stare curs | Instructor | Numar | Numar d... | Leccj Inc... | Mod de L... |
|------------|----------------|-------|------------|--------------|-------------|
| Finalizat | Bades Gheorghe | 134 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 112 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 143 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 88 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 58 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 54 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 61 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 151 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 377 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 42 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 40 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 43 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 26 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 29 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 145 | 07/11/13 | 1 | 07/11/13 |
| Finalizat | Bades Gheorghe | 8 | 07/11/13 | 1 | 07/11/13 |





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The Main Issues Identified

- students can access information materials during the examination;
- high costs for university studies showing that the preparation of an online course is more expensive than the traditional one (but the costs are then amortized quickly),
- the team of "building" of a course includes people specialized in web design, instructional design - more human resources than the classical method of teaching;
- limited involvement of teachers with conservative conceptions or unwilling to digitally transmit some information they teach in the classroom classically;
- longer time affected to the design of courses and questionnaires.



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Blended Learning – Our Advantages

- **Human Interaction**
 - personalized
 - practical training
 - motivation
 - young teachers more involved
 - a sense of belonging to a specific community
 - improve community knowledge sharing between students who use the platform
- **Technology**
 - self study
 - quick answers at homeworks



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Classical educational model

- Lectures in class
- Passive assimilation
- Freelance work
- The teacher is the person who has all the knowledge
- Invariably informational content
- Homogeneity

E-Learning

- Personal study
- Proven level of understanding – estimating skills
- Team work
- The teacher becomes a guide
- Variable information content (current)
- Variation

Blended (mixed) learning

- Lectures in class and improved personal study, experiences, applications
- High level of understanding
- Team work, social networks
- The teacher is a guide, in the real and virtual environment
- Complex information content
- Varied and homogenous information



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Thank you for your kind attention!

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