

European Education in Geodetic Engineering, Cartography and Surveying (EEGECS) – Thematic Network for Higher Education

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Key words: European surveying education, Bologna Process, thematic network.

SUMMARY

In 1999 the European ministers of education started the Bologna Process with a joint declaration. They were driven by the idea to build up a European Area of Higher Education until 2010. The ministers meet every two years to revise the process and set priorities. The paper describes the focal points and the main goals of this process.

In 2002 the project “European Education in Geodetic Engineering, Cartography and Surveying (EEGECS)” started based on these plans. Six working groups with members all over Europe are working together to focus the possibilities for a European network in surveying education. The first results of Working Group 4 dealing with enterprises on the private and public sector are providing great possibilities for the future.

ZUSAMMENFASSUNG

Im Jahr 1999 setzten die europäischen Bildungsminister mit einer gemeinsamen Deklaration das Startzeichen für den Bologna-Prozess. Sie verfolgen damit die Idee bis 2010 ein Europäisches System für Höhere Ausbildung aufzubauen. Die Minister treffen sich alle zwei Jahre, um den Fortschritt zu überprüfen und Prioritäten zu setzen. Diese Zusammenstellung beschreibt die Schwerpunkte und Hauptziele des Bologna-Prozesses.

Im Jahr 2002 startete das EU-Projekt “European Education in Geodetic Engineering, Cartography and Surveying (EEGECS)”. Sechs Arbeitsgruppen mit Mitgliedern aus ganz Europa arbeiten daran, die Ziele des Prozesses auf dem Gebiet der Vermessung umzusetzen und dabei ein europäisches Netzwerk aufzubauen. Erste Ergebnisse der Arbeitsgruppe 4, die sich mit den Anforderungen von privaten Unternehmen und öffentlichen Instituten beschäftigt, zeigen für die Zukunft große Möglichkeiten auf.

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1. INTRODUCTION

For many years every country in Europe has just followed its own way in professional training and education. Maybe some of the countries risked little side views to neighbours, but that was not really relevant. The European Union brought new impacts to the whole field of education. The trend towards greater compatibility and mutual recognition got stronger and stronger and first ideas of a European knowledge-pool were created. In 1999 the European ministers of education started the Bologna Process with a joint declaration. The big goal of this process is to establish the European Area of Higher Education until 2010. This vision builds up the background of the project “European Education in Geodetic Engineering, Cartography and Surveying” (EEGECS), a thematic network for higher education, which started in the year 2002.

2. THE BOLOGNA PROCESS

In 1998 the general principles for the process were laid down in the Sorbonne Declaration. It highlights the key role of universities in developing European cultural dimensions. That fits the context of mobility and employability of European citizens.

2.1 The Bologna Declaration (1999)

On 19 June 1999 the European ministers of education signed this important document to establish the European area of higher education and to promote the European system of higher education all over the world.

The six main topics are:

- **easy readable and comparable degrees** to promote the international competitiveness of higher education
- **a system based on two main cycles** (undergraduate and graduate); first circle studies last a minimum of three years and are required for the second circle, that leads to master and/or doctorate degree
- **a system of credits** promoting student’s mobility (ECTS-points)
- **mobility** for students, teachers, researchers and administrative staff
- **European co-operation in quality assurance**
- **European dimensions in higher education**, in e.g. curricular development, inter-institutional co-operation.

The Bologna Declaration was signed by the ministers responsible for higher education of 29 European countries. Constant support, supervision and adoption to current needs are the reasons for them to meet every two years.

2.2 Prague Communiqué (2001)

European ministers in charge of higher education met in Prague to review the process and to set directions and priorities for the process. They reconfirmed their commitment to establish the European Higher Education Area until 2010. They especially appreciated the ongoing work on quality assurance and also recognized the need for lifelong learning and education.

In addition to the six objectives (Bologna Declaration) the ministers pointed out:

- **lifelong learning** is an essential element of the European Higher Education Area
- **involvement of higher education institutions and students** as competent and constructive partners in the shaping of a European Higher Education Area is needed and welcome
- **promotion of the attractiveness of the European Higher Education Area.** The ministers claimed an increasing collaboration between the European countries concerning new perspectives of transnational education.

Ministers committed themselves to continue their cooperation and welcomed new members to join the process (Croatia, Cyprus and Turkey).

2.3 Berlin Communiqué (2003)

Ministers responsible for higher education from 33 countries met in Berlin to set priorities and to speed up the realisation of the European Higher Education Area. They reconfirmed the social dimension of the Bologna Process. Also the ministers constituted as priorities for the next two years to strengthen the efforts for effective quality assurance systems and to improve the recognition system of degrees and periods of studies.

Additional actions:

- **Two pillars of the knowledge based society:**
 - **European Education Area and**
 - **European Research Area.**

The ministers decided to include the doctoral level as a third cycle in the Bologna Process.

- **Stocktaking**

A group was engaged to organise the stocktaking process and to prepare detailed reports until 2005 about

- quality assurance
- two-cycle system and
- recognition of degrees and periods of studies.

Ministers decided to accept some more requests for membership. So including the new members the process is expanding to 40 European countries. The next conference will take place in the city of Bergen (Norway) in May 2005.

3. THE PROJECT “EEGECS”

The EEGECS-project aims to facilitate trans-national access to educational resources in Europe and to enable graduates in Geodetic Engineering, Cartography and Surveying (GECS) to work all over Europe. In the year 2002 the project started with the main goal to establish a thematic network under the objectives and recommendations of the Bologna and Prague Declarations of the European ministers responsible for education. Actually 114 higher education institutions (universities), research centres, private and public associations and private enterprises from 27 European countries are partner in the project.

4. THE SIX WORKING GROUPS

The activities planned to cover these EU-objectives are organised in six working groups. They develop their activities with different supports (questionnaires, surveys, consultancies, searching, etc.), forums and workshops. There they analyse information and come up with results.

The areas of the project correspond to the main tasks of the working groups (WG):

- WG1 UNDERGRADUATE EDUCATION: enhance the dialogue between higher education institutions, promote the adoption of ECTS and elaborate a core curriculum of the discipline
- WG2 RESEARCH: create a European Research Area and promote the inclusion of the results into the undergraduate education
- WG3 CONTINUOUS EDUCATION: promote the use of innovating teaching methods, collaboration between institutions and create international master programmes
- WG4 ENTERPRISES PRIVATE/PUBLIC SECTOR: analyse the needs of the enterprises and the private sector, create a network of host enterprises for students' practical training
- WG5 MOBILITY,LANGUAGES,CULTURE: promote mobility of undergraduate students, enhance social cohesion, promote scientific studies and language learning
- WG6 QUALITY ASSURANCE: Increase the quality of teaching and move towards a common accreditation system.

At the beginning some groups had problems to get enough feedback, which they needed for an international view of their topics. Also the number of active working participants in the six groups is quite different – there are small ones with 8 to 10 members and others are up to 30.

5. WORKING GROUP 4 “ENTERPRICES – PRIVATE/PUBLIC SECTOR”

The topics of Working Group 4 are:

1. Surveying of skills of GECS graduates demanded by the public and private enterprises.
2. Analysis of branches of industry in which GECS graduates are needed.
3. Promotion of graduates' mobility, of technology transfer, and of research co-operation.
4. Implementation of a network of enterprises disposed to employ GECS students for practical training.
5. Enhancement of co-operation between universities and the private/public sector.

For more than two years an active group of just ten members has worked on the topics above. Primary questionnaires were used to gather information from private and public surveying institutions.

5.1 Questionnaire

The objectives of the questionnaire were based on the whole themes of working group 4. It has been distributed by the active members of the working group to more than two hundred companies and institutions.

Target Groups were

- private companies offering chartered engineers services
- public institutions, working in the GECS sector (federal, central, regional or municipal).

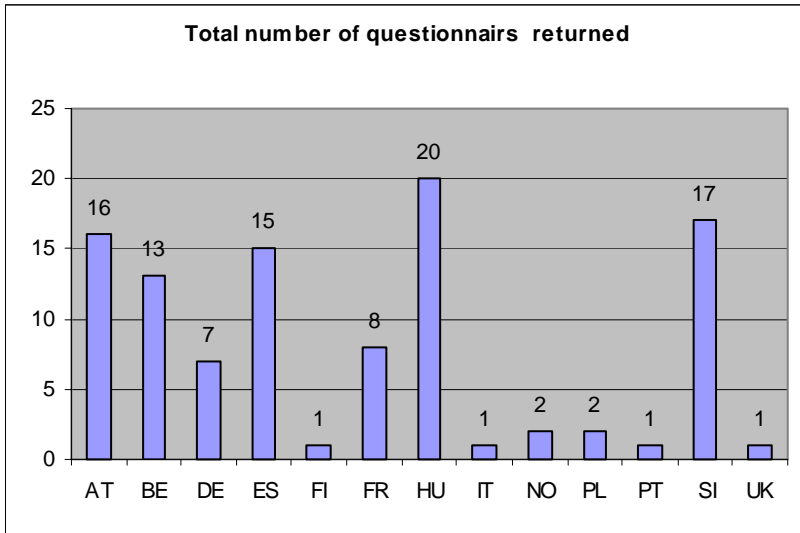
Main topics of the questionnaire:

- Company/Institution – General Information (number of employees, main activities)
- Skills of academic GECS staff
- Co-operation with universities for advancing the professional practical training
- Mobility of graduates across Europe
- Continuous Lifelong Learning (CLL).

5.2 First Results

5.2.1 Response

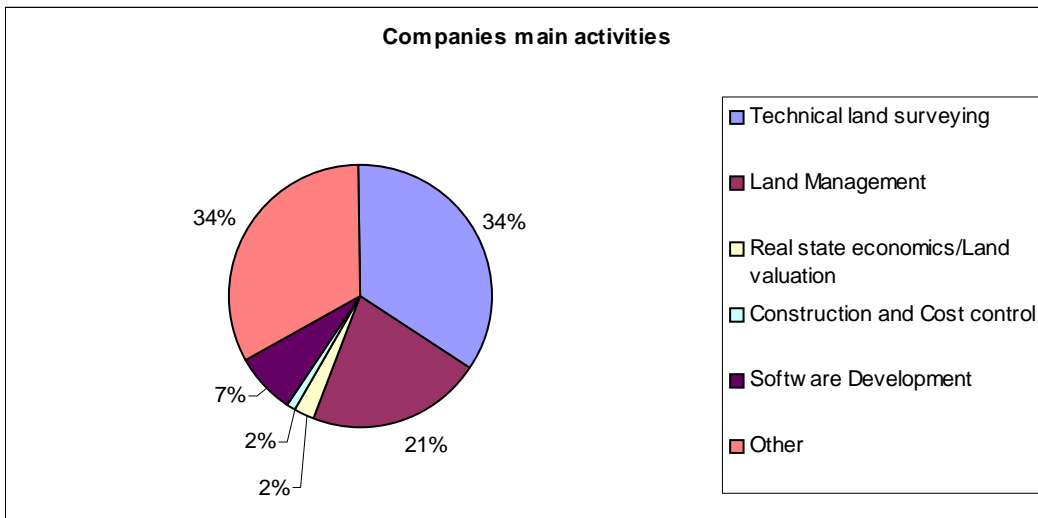
Response to the questionnaires has been received from 13 European countries. A total of 104 questionnaires were returned.



It is an interesting fact, that the response from the “new” European countries (i.e. from Central Europe) was higher than expected.

The focus of working group 4 is on the private sector. Therefore mostly private companies have been contacted and the feedback also reflects this focus. Nevertheless also public institutions have been contacted. About 3/4 of the questionnaires have been filled out by private companies.

5.2.2 Main field of company activities



The results of the study show that the major focus of the companies activities is focused on technical land surveying, which takes more than one third of the companies recourses.

Another third flows into other activities, mainly administration, marketing and promotion and management. Land management covers 21% of the companies activities, software development 7% and real estate economics and land valuation are of minor interest.

5.2.3 Mobility across Europe

The majority of the interviewed companies is willing to accept students from abroad for practical training. The companies, which agreed to do so, will be asked, if they will agree to provide their contact details for our network.

50% of the companies are employing GECS graduates from foreign countries, whereas the majority of these companies are located in Hungary, Poland or Slovenia.

5.2.4 Continuous Lifelong Learning (CLL)

In only 1/3 of the companies/institutions CLL is part of the working contract. E-learning does not seem to be very popular at present. 2/3 of the companies are offering training for their graduate GECS employees.

Only 7% of the interviewed companies answered that they would prefer e-learning to face-to-face courses.

An interesting outcome was the result to the question: Which duration of training would you propose as ideal for your staff? Although “only” 68% of the interviewed companies/institutions offer training to their staff at the moment, 98% agreed that it is necessary to offer training to their staff. Even more than 50% see the necessity of 7 days of training per year.

About 1/3 of the interviewed are looking for help in the selection of training courses.

5.3 What’s going on?

The results of the analysis will be available to the participating companies/institutions, to working group 4 and to other working groups involved in the project as well as to higher institutions, professional associations and research centres from different European countries. The information provided will be used as a basis for the creation of a network.

LINK (further information)

www.top.upv.es/egecs Homepage of project “EEGECS

BIOGRAPHICAL NOTES

Gert Steinkellner

- 1956 born nearby Vienna/ Austria
1983 University degree for Surveying (master degree) at Vienna University of Technology
1983-1984 Scientific Assistant at Institute for Photogrammetry and Remote Sensing, Vienna University of Technology
1984-1990 Technical expert (Department of National Borders) at Federal Office of Metrology and Surveying (BEV)
since 1990 Head of the Section for Training and Education at BEV
since 1992 Austrian Delegate to Commission 2 (Professional Education) of the International Federation of Surveyors (FIG)
1996-2003 Secretary of the Austrian Society for Surveying and Geoinformation (OVG)
since 1997 Deputy Head of the Department for Human Resources at BEV
1999-2001 Trainer for Hungarian managers and member of Advisory Board in the EU-Project "Staff Development in Land Administration" (SDiLA)
2000 Degree for Quality Manager (Europe)
2001 Trainer for Russian experts in the EU-Project "Inventory of land and registration of rights" (for LARIS Centre, Moscow)
since 2001 Head of the Austrian Delegation to General Assembly of FIG
2002-2005 Project partner in EU-Thematic Network for Higher Education "EEGECS – European Education in Geodetic Engineering, Cartography and Surveying"
since 2003 President of OVG
2004-2005 Member of Expert-Pool EU-Twinning Light-Project: „Improving the Sustainability of the Hungarian Land Registration System“

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MSc, Geodesy, Photogrammetry and Remote Sensing
1993-1994 **Universidad Autónoma de Campeche, Mexiko**
Principal investigator: Austrian Science Fund (FWF) project: 3D-CAD modeling and digital dynamic visualization of settlement architecture
1995-1996 **Nepal-Research-Center, New Baneshwar, Katmandu, Nepal**
Junior researcher: "Nepal-German Project on High Mountain Archaeology"
Commission for General and Comparative Archaeology (KAVA) of the German Archaeological Institute
1997 **Graz University of Technology, Austria**
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- since 1998 **University of Natural Resources and Applied Life Sciences, Vienna**
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