

**Report to the 34th General Assembly
FIG Working Week 2011 in Marrakech, Morocco**

FIG Commission 2 – Professional Education

End of Term Report 2007- 2010

1. General

The Commission 2 Work Plan 2007-2010 building on the experiences of the previous period tries to fulfil and implement the FIG Council Work Plan. Commission 2 in general aims:

- To perform needs analysis of Commission representatives and FIG Academic members
- To develop further the FIG Surveying Education Database and facilities using educational and internet standards
- To organize annual workshops on actual topics related to education and training
- To investigate the use of information and communication technology to support networked professional education
- To organise, jointly with other Commissions, Regional Summer Schools for solving problems, filling educational gaps and for building communities within young professionals.

The mission and aims were realized by the following Working Groups:

Working Group 2.1 – Curriculum development

Quality curriculum and instruction are - as they have always been - the bedrock of education and the way to developing thoughtful and fulfilled professionals. The society, science and technology around our profession are changing rapidly. These changes continuously generate new educational and training needs, which should be responded by educators to ensure that their learners gain knowledge as effectively and efficiently as possible.

Working Group 2.2 – e-Learning

To successfully disseminate the knowledge, it is essential to have an up-to-date learning environment. Thanks to the development in information and communication technologies, there have been lots of possibilities and tools re-engineer the classical teaching methods. Because of e-Learning methods are expected to play an increasing role in professional education there is a growing need for knowledge transfer on this field.

Working Group 2.3 – Educational Management and Marketing

Knowledge dissemination is not only a methodological / technical problem. Institutes have to own the rights how the published materials may be available for others as well as taking commercial aspects into account. According to the rapidly changing world and demands in professional education business-based survey can help us to manage successful curricula.

Working Group 2.4 – Real Estate Valuation and Management Education

This is a joint with Commission 9 to ensure the surveying education keeps up with the rapidly changing field.

To support the activities in the working groups Commission also conducted:

- Workshops,
- Summer Schools,
- initiated Joint Projects.

In addition to the specific activities above, the Commission contributed to FIG Task Forces and the Standards Network.

2. Working Groups

Working Group 2.1 – Curriculum development

Policy issues

- To support the mobility among professionals, teaching staff and students using credit transfer.
- To support the implementation of „Bologna” changes (BSc / MSc / PhD / Professional masters) and recognition.
- To facilitate the harmonization of curricula.
- To define a “core knowledge base”.
- To guarantee life-long learning with educational and training services.
- To serve the needs in the new professional challenges.
- To exchange ideas on Quality Management and Accreditation.

Chair

Prof Bela Markus (Szekesfehervar, Hungary), email: mb@geo.info.hu

Activities

1. FIG Working Week

12-17 May, 2007. Hotel Kowloon Shangri-La, Hong Kong SAR

On the Annual Meeting Prof Bela Markus and WG chairs (Prof Arvo Vitikainen and Mr Gert Steinkellner) introduced the work plan accepted by the General Assembly.

A “Round Table on Education in Asia and the Pacific” and the “Meeting of FIG Academic Members” supported tuning the work plan, helping the needs analysis.

During the Working Week 6 technical sessions were organized by Commission 2. After the review 21 presentations were accepted and 17 papers presented. The main topics were as follows: Curriculum Development, e-Learning and Knowledge Management, Building a Sustainable Future, Marketing and Sustainability in Education, The Future of Surveyors. The average number of participants was between 15 and 20.

2. Scientia Est Potentia Symposium

7-9 June, 2007. Czech Technical University, Prague, Czech Republic

The FIG Commission 2 Symposium with the motto of *Scientia Est Potentia* (Knowledge is Power) was held on in Prague, between 7 and 9 June 2007 in the cooperation with the Faculty of Civil Engineering CTU in Prague and the International Federation of Surveyors Commission 2 – Professional Education. The symposium was hosted by the Faculty of Civil Engineering CTU in Prague.

The goal of the workshop was to reveal the present state of curriculum development including the accreditation processes as well. The workshop started by the workshop reports of Commission 2. The Working Group leaders presented the current activities of Commission 2, furthermore the workplan was reviewed discussing the important events for the period of 2007-2010. Stig Enemark, the President of FIG (Aalborg University) in his presentation encouraged the *interaction between education, research and professional practice*, underlying the importance of *curriculum development as the key to the future*. It is an ongoing process and it is crucial to both the educational institutions and the society they serve. This relates especially to educational programs designed to professionals such as surveyors. Ann B. Johnson, the Higher Education Solutions Manager (ESRI), had a presentation on *Meeting the Challenge - Incorporating New Technologies and Methods into a Curriculum for Surveying*. She introduced the experiences of the US team dealing with *Book of Knowledge in GIS* and the new developments at ESRI participants supporting the community of surveyors.

Twenty-one presentations were given in nine sessions during the symposium. The speakers represented 11 countries, educational and governmental institutes as well as private companies from all over Europe and also from Canada, United States and Hong Kong. The presentations of the symposium mainly covered the curriculum development activities in our profession, the roles of educational methods including their technical backgrounds. There was a separate session summarizing the Bologna changes in Slovakia, Czech Republic, Canada and Croatia. One session was devoted to the e-Learning methods where the speakers presented their experiences on e-Learning tools, materials and some examples in teaching of cartography and geoinformatics with e-learning tools and platforms.

Prof. Bela Markus, Faculty of Geoinformatics, University of West Hungary as the chair of Commission 2 introduced the newly designed homepage (www.geo.info.hu/fig2) of the Commission 2 as an addition to the FIG Com. 2 Internet site. This new site was developed to strengthen the communication, the community building between the delegates, academic members and other parties interested in the FIG activities. Prof. Bela Markus encouraged everybody for registering on the site since it gives access not only for viewing but also for publishing of news, important events in the event calendar, articles, presentations, photos, and it gives also possibility to take part actively in the forum of needs analysis and many other topics.

3. Working Week 2008: Integrating generations

14-19 June 2008 Stockholm, Sweden

The Working Week addressed many of the issues facing both professional surveyors and educators in the next years. These include questions related to the need of getting young people interested in surveying and geomatics, what is the role of modern technology in professional education and training, how to keep the professional qualifications up to date, need for capacity building – all issues of great interest for FIG and the organisers.

As Swedish surveyors are very successful in the fields of real estate management and valuation we were happy to see at the technical sessions their experiences in different joint educational projects, their showcase how Swedish educators have a strong interest in assisting surveyors and land related professions in developing countries.

During the Working Week three technical sessions were organized by Commission 2. After the review of the abstracts, 21 presentations were accepted and 17 papers presented. The main topics were: Curriculum Development, Educational Case Studies and Educational Projects. Commission 2 co-operated with other Commissions in two additional Technical Sessions: TS 2F – Young Surveyors and TS 3G – Capacity Building. More: <http://www.fig.net/fig2008/>

4. Summer School on Urban 3D modelling

23-29 August 2008 Szekesfehervar, Hungary

The Summer School aimed to give an overview of data acquisition, data processing and modelling methods related to 3D modeling in urban environments. 40 students attended from abroad and 10 from Hungary. For 27 August 2008, a one-day conference has been arranged in order to give a top quality overview on new methodologies in data collection and modelling.

The venue was the UWH GEO's Knowledge Center on Land and Geoinformation. Lectures delivered by leading representatives of the 3D arena including Eurosense, LEICA, Varinex, Laservision/Riegl, YonaPMS, András Osskó, the chair of FIG Commission 7 as well as Prof. Franz Leberl, chief scientist of Microsoft' Virtual Earth program.

The event was free to the public thanks to the prominent donor organisations. Major sponsor of the conference was Microsoft. More information and the recorded presentations are available at the website: <http://www.geo.info.hu/urban3d/>

5. Working Week 2009: Surveyors Key Role in Accelerated Development

3-8 May, 2009 Eilat, Israel

The Working Week targeted many of the issues facing both our profession and educators in the next years. The main topics addressed by Commission 2 include the importance of changes in land surveyors education, the future directions of education to meet the challenges and opportunities, the role of surveying within the university curricula in general, outcome-based approach to teaching, learning and assessment,

development of curricula and educational materials, the need of getting young people interested in surveying and geomatics, marketing of education, challenges and opportunities in learning management.

During the Working Week three technical sessions were organized by Commission 2. After the review of the abstracts, 12 presentations were accepted and presented. The main topics were: Needs of Changing Society – New Skills, Competences in Surveying, Good Educational Practices, Life-long Learning – Educational and Training Services. More information available at <http://www.fig.net/fig2009/>

6. 7th Regional Conference: Spatial Data Serving People: Land Governance and the Environment - Building the Capacity

19-22 October 2009, Hanoi Vietnam

At the 7th Regional Conference our main focus were on “Education and training needs and responses” and “Capacity building”. During the Conference two technical sessions were organized by Commission 2. After the review of the abstracts, 8 presentations were accepted and presented on various topics (exchange programs, geomatics education: as a rising sector for value addition, building the capacities in the cadastral and land registration organizations at individual level in developing and transition countries, etc). ITC presented a Worldwide Network of Academic Partners; a Mechanism for Improving Capacity Building in Land Administration.

There was a “Roundtable on Professional Education”, where Dr. Steven Frank, chair elect Commission 2 (USA): presented his Work Plan for the period of 2011-2014.

7. FIG Congress, Sydney

The overall theme of FIG 2010 “Facing the Challenges – Building the Capacity” was fitting very much to the general aims of Commission 2. reflected by the topics in the call for papers, such as needs of changing society - new skills, competences in surveying, surveying curricula developments, life-long learning - educational and training services, e-Learning - content development methods, tools, student support, good educational practices and experiences in recruitment and marketing.

Within the 11 technical sessions more than 50 papers were presented. There was a roundtable on “Knowledge transfer and attracting young people to surveying”, jointly organised with ASIERA, chaired by Prof. Chris Rizos, Chair of ASIERA, Australia.

8. Workshop on the Trends in Surveying Education and Training

University of East London, 26th-27th August 2010

This conference and workshop focussed on surveying education and in particular how educators around the world respond to changes in the survey profession and keep their courses relevant and stimulating for students. Also explored were the opportunities that exist to enhance surveying teaching and learning by sharing approaches and investigating the benefits of a variety of new technologies. The meeting also saw the

hand over of the chair of FIG commission 2 from Bela Markus (University of West Hungary) to Steven Frank (New Mexico State University).

FIG president, Stig Enemark, gave the opening address and presented an overview of surveying education in Europe. Most surveying courses have experienced significant changes in recent years, changes brought about by survey technology, the use of computers in teaching and learning and changes to the profession itself. Indeed, one comment that seemed to dominate these proceedings was that ‘the only thing we can rely on is that things will change’. Bela Markus has chaired FIG Commission 2 for four years and as outgoing chair he gave a presentation on Commission 2 achievements amongst which have been 10 workshops or conferences held worldwide. The impact of the changing worlds of both surveying and education were again highlighted in the presentation. As a key part of this, the growing trend of professional institutions towards using competencies as part of their requirements for membership was discussed. However it was clear that the range of definitions of surveying found worldwide makes international acceptance of a common system difficult. In terms of changes in education, the growing emphasis on the provision of e-learning is clear and in January 2010 Commission 2 highlighted this in FIG Report no. 46 “Enhancing Surveying Education through E-learning” Gert Steinkellner, reported on the work of working group 2.4 - Education Management and Marketing, including details of the workshop held in Vienna in 2009. After identifying the ‘big swing’ of the profession from measurement to management as a challenge, he discussed the role FIG could take in marketing surveying education. This included looking at how the profession is recognised, the need for realistic expectations and the need for co-ordinated global marketing.

The final item for the day was the introduction of the proposed work plan for Commission 2 for 2011 – 2014 by Steven Frank, chairman elect. Discussion followed on the strategies suggested for each working group and how FIG can help with survey education at all levels.

The meeting closed with a discussion on the possible timing and themes of Commission 2 workshops for the next four years and ways in which to maximise their potential.

Working Group 2.2 – e-Learning

Policy issues

- To explore the movement from traditional face-to-face teaching towards an integrated learning environment, the changing role of the academic staff.
- To discuss the technical, political, legal, organisational and cultural problems of e-Learning.
- To exchange experiences on content development methods (Multimedia, CBT, Quizzes etc) and student support (Virtual Club / Library, Communication techniques, Teamwork tools).
- To identify the Educational Portal functions
- To disseminate Educational Metadata

Chair

Liza Groenendijk, ITC (Enschede, Netherlands), email: groenendijk@itc.nl

Activities

1. e-Learning: Sharing Good Practices

11-13 June 2008 Enschede, The Netherlands

From the 11th to 13th of June 2008 a group of international professionals engaged in e-learning and distance education came together in ITC for the International Workshop Sharing Good Practices: e-learning in surveying, geo-information sciences and land administration. The organisation of the workshop was a combined effort of Commission 2 and Commission 7, and the International Institute for Geo-information Science and Earth Observation (ITC) in the Netherlands. The Netherlands Cadastre, Land Registry and Mapping Agency sponsored the event.

The program consisted of keynote speakers, technical sessions, hands-on sessions, demonstrations and guided discussions. The organisation received 30 accepted contributions and 70 participants, from 27 different countries, participated actively in the various workshop sessions.

The workshop was opened by Prof. Martien Molenaar, Rector of ITC and FIG President Prof. Stig Enemark delivered his opening address through video conferencing from Denmark. As first keynote speaker was welcomed Dr. Nicholas Frunzi, Director of Educational Services, ESRI, USA. Dr. Frunzi gave an overview of ESRI's developments in educational services starting with instructor-led classroom training in 1988 to the ESRI Virtual Classroom today and the Blended Learning with ESRI Press in the future.

Prof. Bela Markus of the University of West Hungary, Chair of FIG Commission 2, was the second keynote speaker. After introducing the concept of e-learning, he discussed the status, the trends and the importance of business models in e-learning. He stressed the importance a business model of re-using and sharing resources to build sustainable courses within networking partnerships.

The keynote addressed by András Osskó, Chief Advisor, Budapest Land Office and Chair FIG Commission 7, focussed on the importance of changes in the education of land surveyors. Interest in traditional land surveying is decreasing, while interest in land administration, on the other hand, is increasing. Osskó made a plea for lifelong learning which is necessary not only for individuals but also for institutions to keep the knowledge of their staff up-to-date.

Based on the content of the accepted contributions the following technical sessions were offered:

- Good practices in e-learning and distance education
- Engaging in e-learning
- Continuous Professional Development
- International Cooperation and/in e-learning

During the workshop dinner the Best Paper Award was handed over to Dr. Henny Mills of Newcastle University, for her paper entitled: A Virtual Surveying Field Course for Traversing, written together with David Barber. The paper describes an innovative e-learning tool developed for a Geomatics degree course. It was considered an excellent example of how a virtual fieldwork tool can support student understanding and prepare for real fieldwork.

One afternoon of the workshop was reserved for the Hands-on sessions. Participants could choose from the following 4 different sessions:

1. Captivate® for Animations and Simulations
2. Creating a Wiki
3. Quick and easy lecture video recording
4. Communicate. Collaborate. Educate with Elluminate®

The workshop on Captivate attracted the highest number of participants. The workshops were followed by a demonstration of the e-learning activities of The Netherlands Cadastre, Land Registry and Mapping Agency.

At the end of each day participants came together in so-called home groups. These home groups were formed to create an informal platform for discussion and exchange of experiences and to formulate points for discussion. Each home group was guided by a moderator.

The conclusions of the four home groups were presented during the Closing Session and summarised by Chris Paresi, Head of the Department of Urban and Regional Planning and Geo-information Management at ITC. The outcome of the discussion can be summarised as follows:

1. The importance of partnerships

Working together, sharing of experiences and resources, is considered of great importance for the success and further development of e-learning in the field of surveying, geo-information science and land administration.

The term Thematic Network and the e-learning concept, Community of Practice, were also proposed in this context.

More in particular were mentioned:

- Explore cooperation between professional organisations FIG, ISPRS and ICA
- Recognition of e-learning material and courses
- The importance of quality assurance
- The need for a credit exchange system
- The role of open source
- Sharing of Contents
- Stronger partnership between Academia and Professionals
- The need for an e-learning infrastructure

- Promote a business model of re-using and sharing e-learning courses and courseware

2. *E-learning as a tool for Continuous Professional Development*

E-learning is considered an excellent tool for continuous professional development and life long learning, especially in the rapidly changing working field of the land professional.

More in particular were discussed:

- Nano-units of (e-)learning: small focussed training units, for particular learning needs
- “Immediate” implementation of learned skills by professionals
- The changing meaning of learning and how to achieve this
- The strong link between e-learning and knowledge management
- Online communication and collaboration tools for exchange of experiences and mutual learning
- Blended approaches preferred

3. *E-learning to engage young surveyors*

An issue of concern within FIG is the decreasing interest of university students in the land surveying profession. Universities and professional training institutions need to review their education according to new requirements and students interests. E-learning may contribute to motivate students to join the profession.

Points mentioned by the groups:

- Online communication and collaboration tools for interaction, group work, peer exchange, supervision
- Students used to digital learning and communication
- Global interest of students
- Online mentoring and support through Communities of Practice
- Prepare students for Life Long Learning
- An opportunity for students from developing countries

4. *Define the field of e-learning within FIG*

The workshop made clear that a lot of knowledge has been accumulated in recent years in the field of e-learning and surveying, geo-information sciences and land administration. Many lessons have been learned and it is the right time now to analyse these lessons and publish the findings.

More in particular it was suggested:

- Prepare a FIG Publication on the topic of e-Learning
- Bring the all experts together in a wiki environment and write a reference book on e-learning!

5. *Some problems and final remark*

Many success stories in e-learning were presented during the workshop. But of course there were also many critical issues to discuss.

Some of the identified shortcomings of e-learning:

- Language a bottleneck
- Cultural differences in learning style and content
- E-learning is a tool and learning is the objective
- For practical teaching e-learning is considered of limited use
- E-learning not really rewarded by training institutions and universities. Developing e-learning courses and material is demanding in time and expertise.

Proceedings with the full papers are available on CD ROM. A paper publication of the Proceedings produced in the second half of 2008 including the outcome of the discussion sessions. All presentations can be found on the workshop website: http://www.itc.nl/fig_elearning2008

2. Preparation of the FIG Publication (No.45)

Enhancing Surveying Education - through e-learning

published at the FIG Congress 2010 in Sydney

At the „Navigating the Future of Surveying Education” workshop in Vienna (February 2009), the board of working group chairs of Commission 2 decided to summarize the experiences on e-Learning in a technical report. As chair of Working Group 2.2 Liza Groenendijk was invited to guide this process and be responsible for the editing.

The technical report on e-learning intends to summarize the outcomes of symposia and workshops organised by FIG Commission 2, and aims to develop and present an FIG Policy Statement on e-learning. The intention of the report is to support FIG members and their affiliates, and the surveying public in general, in their efforts to further develop e-learning initiatives within their organisations.

The preparations for the technical report started early March 2009. A team of Commission 2 members drafted a first proposal and invited relevant e-learning specialists from universities and industry to join. The publication will be presented during the FIG Congress in 2010 in Sydney. To facilitate the writing process a Wiki environment (<http://figpub.pbworks.com/>) was created for drafting the publication and Skype was promoted as the tool for online meetings. By the end for 2009 the draft for publication was sent to the FIG Office.

The structure and content were discussed during the different FIG events in 2009.

The technical report was published at the FIG Congress 2010 in Sydney.

Working Group 2.3 – Educational Management and Marketing

Policy issues

- To observe and register the new challenges of our profession respond to them.
- To survey the needs for academic members and provide required services.
- To analyse the market and respond by LLL services.
- To promote the need on CPD (Continuous Professional Development).
- To disseminate experiences in recruitment and marketing.
- To distribute know-how in Project and Quality Management.
- To encourage young surveyors (students) on their career.
- To serve ALUMNI and use its power.
- To build twinning and thematic networks.

Chair

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Activities

Workshop on Navigating the Future of Surveying Education

26-28 February, Vienna, Austria

Working Group 2.3 of FIG Commission 2 on Educational Management and Marketing and the Austrian Society for Surveying and Geoinformation (OVG) were organising jointly the Workshop. The venues were the lecture halls of the Federal Office of Metrology and Surveying (BEV) in the centre of the City of Vienna, Austria. Heads of Organizing Committee were Mr. Gert Steinkellner and Dr. Reinfried Mansberger.

The program consisted of keynote speakers, technical sessions, hands-on sessions, demonstrations and guided discussions. The Organisation Committee received 30 accepted contributions and 74 participants, from 20 different countries, participated actively in the various workshop sessions. 27 speakers shared their experiences in professional education on the following topics:

- Marketing of Professional Education
- Availability of Continuous Professional Development
- Educational Networks – Globalisation of Surveying Education
- Quality Assurance in Surveying Education & Training
- New Methods for Knowledge Transfer
- Scope of Competences in Professional Education

Keynote speeches were given by the President of FIG, Prof. Stig Enemark, by the ESRI Director of Education, Michael Gould, by the chair elect of FIG Commission 2, Steve Frank, and by the Rector of the University of Technology in Graz/Austria, Prof. Hans Sünkel and by the Austrian Representative of the Bologna Follow Up Group, Gottfried Bacher.

During the conference in two short-term workshops hosted discussions on the topics

- “Students Where Are You?”, and
- “Student Today – Status & Vision”

In the first mentioned workshop the reasons for the decreasing number of students were analysed and proper strategies for the recruitment of students and the marketing of professional surveying education were elaborated. The second one – performed by students – examined the situation of students in our professional fields and tried to outline visions for an optimised professional education. Both topics of the workshops have a high relevance in most of our countries.

The discussion topics of the “Students Where Are You?” workshop were as follows:

1. Is the surveying profession itself too unattractive for today’s young people?
2. Is the low number of surveying students the result of an insufficient and inadequate education?
3. Is the low number of surveying students the result of only a missing or none active marketing of the surveying study and/or the surveying profession?
4. How to enhance technical interest and interest especially for academic surveying education? Mustn't technical education and training begin at kindergarten/ elementary school?
5. How to encourage life long learning, project management and quality management?

The conclusions were presented during the Closing Session by Mr. Rob Mahoney.

The results of the second workshop were presented during the Closing Session, and were used during the Working Week in Eilat in the discussions generated by “Young Surveyors”.

All presentations can be found on the workshop website: <http://fig09.ovg.at/>

Working Group 2.4 – Real Estate Valuation and Management Education (Joint WG with Commission 9)

Policy Issues

- Surveyors are traditionally well educated to basics of real estate legislation and markets. In the present world requirements for knowledge in real estate are expanding fast. It is not anymore possible to educate surveyors to all traditional tasks in unified programs but the programs have to have real options where students can really specialise in real estate economics. This is needed in the market (thousands of new jobs) and examples of some countries show that this kind of education is possible and also very attractive for students and markets.

Chair

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Activities

It was our intention (at Helsinki University of Technology) at the autumn candidate seminar of the study program of the real estate economics to collect basic material for the final report of WG 2.4 Real Estate Valuation and Management Education. We

meant to prepare a preliminary report for the Eilat Working Week based on these papers. Unfortunately the autumn seminar had very few participants and the topic was experienced rather difficult, so the plan did not realise. We will try to prepare for the topic more carefully and make the students of the spring seminar enthused about the topic. We would then have a good final report for the Sydney congress. Further, we did not have resources to plan and realise a seminar or workshop on the WG 2.4 subject field for the coming spring. The reason for this was simply lack of time (along with my normal responsibilities I did the preparation work and obtained financing for an extensive research programme on the effects of land consolidation). Kauko Viitanen, for one, has been tightly occupied with the preparation of the university organisation reform.

3. Communication

Newsletters

Commission 2 delegates and member associations were informed via regular Commission newsletters.

4. Calendar of Annual Events

- Workshop on Curriculum Development
Scientia Est Potentia - Knowledge is power. FIG Commission 2 Symposium,
7-9 June 2007, Czech Technical University, Prague, Czech Republic
Web site: <http://geoinformatics.fsv.cvut.cz/>
- Workshop on e-Learning,
11-13 June 2008, Enschede, Netherlands
Web site: http://www.itc.nl/fig_elearning2008/
- Workshop on Educational management and marketing,
26-28 February 2009, Vienna, Austria
Web site: <http://fig09.ovg.at/>
- Workshop on the Trends in Surveying Education and Training
Web site: 26-28 August 2010, London, UK
<http://www.uel.ac.uk/fig/>

5. Commission Officers

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