Surveying Education:
Facing the Challenges – Building the Capacity

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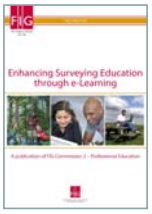
FIG COMMISSION 2 WORKSHOP, LONDON, 26-28 AUGUST 2010

Congratulations to Commission 2

- **Annual meetings and seminars**
  Enhancing the commission work plan and working groups through annual meetings and seminars
- **Publication**
  on e-Learning in Surveying Education
  Feeding into the council agenda of building the capacity



A highly successful term of Office

Current FIG Policies

Is the role of the Surveyors changing ?

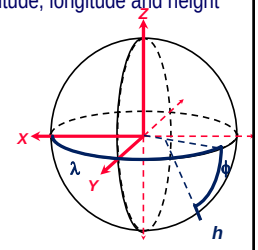
FIG Policies - the big swing

- **From Measurement**
  Surveyors will still be high level experts within measurement science, but due to technology development the role is changing into managing the measurements
- **To Management**
  Surveyors will increasingly contribute to building sustainable societies as experts in managing land and properties

The Land Professionals

Positioning infrastructures
Versus traditional Geodetic Datum

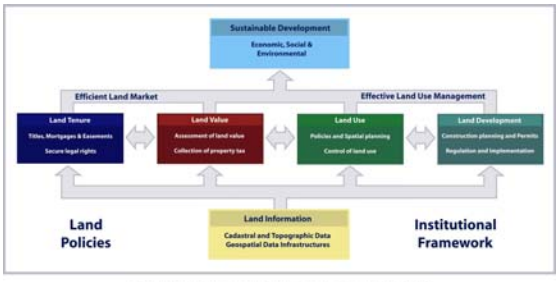
- Enables description of position as latitude, longitude and height and underpins all geo-spatial data;
- Characteristics:
  - Coverage - initially local but has evolved to national and continental;
  - Measurement – initially ground based, labor intensive, now more efficient using GNSS;
  - Data management - initially very analogue but now a key part and often integrated in Spatial data Infrastructures (SDI)



Positioning infrastructures are the only truly global infrastructure underscoring capture and management of spatial data world wide

Source: Matt Higgins, Washington, 2009

Land Governance



A Global Land Management Perspective. Stig Enemark, April 2004.

Current FIG policies

Do Surveyors have a role to play in the global agenda?

Yes !

Simply, no development will take place without having a spatial dimension

And no development will happen without the footprint of the surveyor

Facing the new challenges

- Climate change
- Food shortage
- Energy scarcity
- Urban growth
- Environmental degradation
- Natural disasters
- Global financial crisis

All these challenges relate to governance and management of land
The surveyors – the land professionals - play a key role

Global partnership drives development for achieving the MDGs

Global recognition → national recognition → local recognition

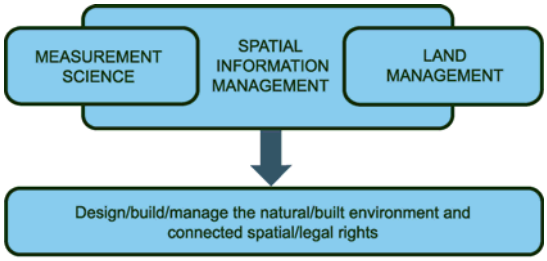
The role of the land professionals

Dealing with the land issue will require skills in the following areas:

- High level geodesy models to predict future change
- Modern surveying and mapping tools to support management and implementation
- Spatial data infrastructures to support decision making on the natural and built environment
- Secure tenure systems and sustainable systems for land valuation, land use management and land development
- Systems for transparency and good governance

Land governance is an interdisciplinary and cross-cutting area mixing technical, natural and social science

The Educational Profile of the Future



Key Message

Facing the challenges requires an innovative and adaptable approach to both curriculum design and course delivery within the framework of an overall quality culture.

Building the capacity will eventually depend on an efficient interaction between education, research, and professional practice.

FIG Commission 2 Work Plan 2011-2014

- WG 2.1 – Curriculum and Core Survey Knowledge
  - Understanding core curriculum needs for a consistent and interchangeable education for professional surveyors.
- WG 2.2 – Learning and Teaching Methodology
  - Identifying best practices for learning and teaching methodologies for universal continuous development of the surveying profession
- WG 2.3 – Marketing and Management
  - Developing a logical, universal approach to promotion of professional survey education
- WG 2.4 Accreditation and Quality Assurance
  - Promoting quality survey education meeting international needs for developing a universal understanding of the role of surveyors in society

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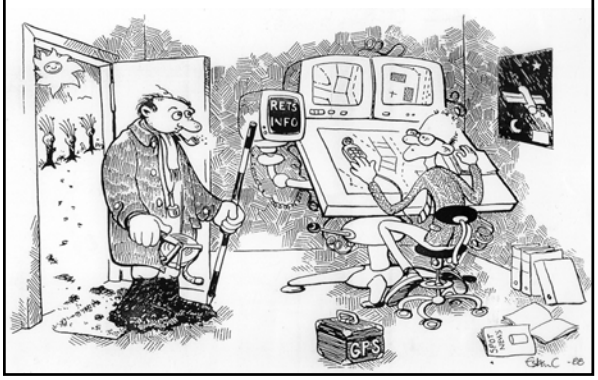
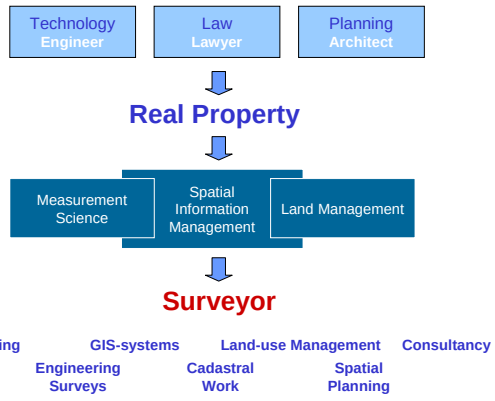
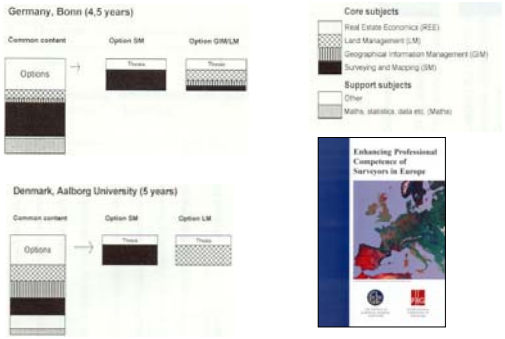
Yesterday, Today and Tomorrow

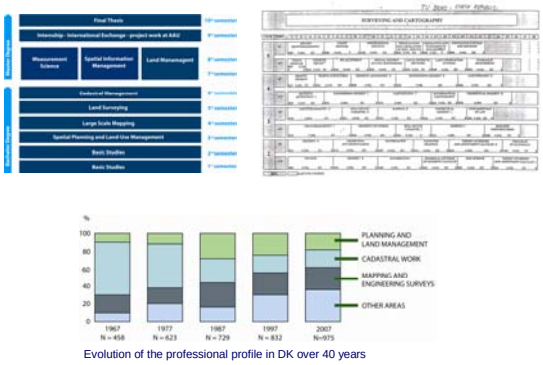




Educational Profiles in Europe



Flexible curriculum to accommodate change



Evolution of the professional profile in DK over 40 years

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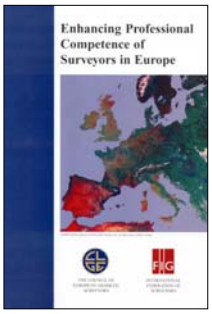
Learning to Learn

Professional and technical skills can be acquired and updated later in ones carrier, while skills for problem solving and skills for learning to learn can only be established through the process of academic training at the universities.

Skills of dealing with the unknown problems of the future

Pedagogical Models



Parallell courses

Autumn/Winter Semester Spring semester

Block courses

Course 1	Course 3	Course 5	Course 7
Course 2	Course 4	Course 6	

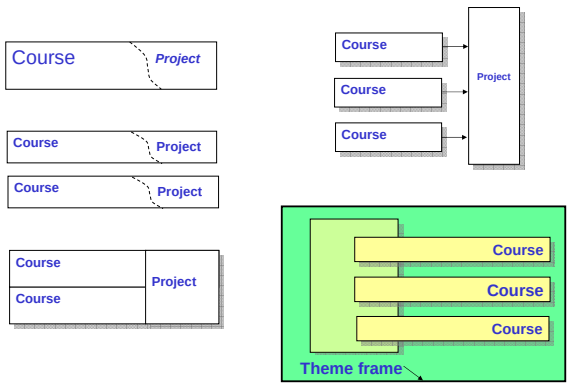
Autumn/Winter Semester Spring semester

Project oriented education

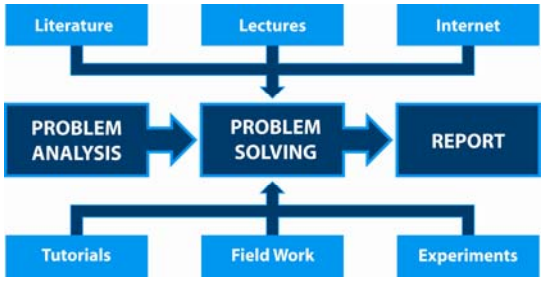
Projectwork Projectwork

Autumn/Winter Semester Spring semester

Lecture courses – project work …



Project-organised and Problem-based Learning



The Aalborg Curriculum

Project-organise and problem-based learning

- Problem Based Learning
  - Based on real-life engineering problems
- Project Organised Education
  - Project work supported by lecture courses
- Group Work
  - Groups of four to six students
  - Supervised by the teachers
- Interdisciplinary Studies
  - Integration of theory and practice
  - Focus on Learning to Learn

Facilitating the learning process of the students

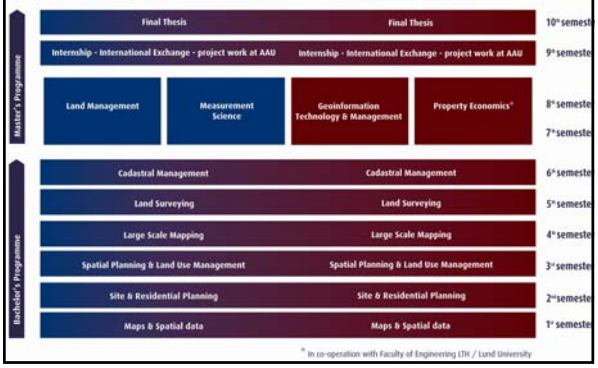
Virtual Academy

- Web-based course provision
  - Lecturing based on virtual learning documents
- Wed-based course libraries
  - Available for ongoing improvement
  - Available for professional practice
- Web-based spatial data libraries
  Available for courses and project work
- Web-based distant learning courses
  - Offered as CPD activities, summer schools etc.
  - Integrated platforms for professional knowledge

M. Sc. - Chartered Surveyor Study Propgramme

New Curriculum September 2007

AALBORG COPENHAGEN



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And….promotion for attracting students

Facing the challenges

- **Lack of students**
- **Too big a gap between supply and demand**
- **Option for double degree and new specialisations in cooperation with Lund University, Sweden**
- **Option for offering a range of specialisations as master programs under the Bologna agreement.**
- **Option for offering the program also in Copenhagen**

Year	Enrol	Grad.
2000	52	17
2001	39	23
2002	38	30
2003	35	30
2004	32	35
2005	25	46
2006	26	35
2007	28+21	25
2008	25+19	20
2009	23+14	27
2010	19+11	21

Rate of unemployment < 1%

Lifelong Learning

THE PROFESSIONAL COMPETANCE MODEL

Professional competence relates to the status as an expert.

This status cannot be achieved only through university graduation and it cannot be achieved solely through professional practice.

The idea of "learning for life" is replaced by the concept of lifelong learning.

All graduates must have access to the newest knowledge throughout their professional life.

E-Learning and innovative interaction between education, research and professional practice is essential in this regard

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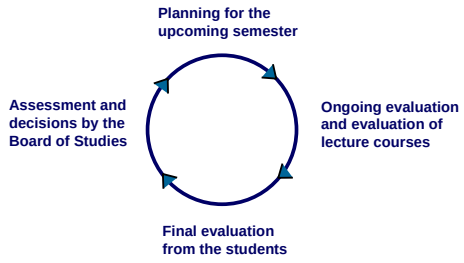
Quality Management

- Structural Challenges
  - Local level: Department structures
  - National level: Performance criteria, resources
  - International level: Agreements such as Bologna
  - Call for leadership, focus on the professional competence of the graduates
- Accreditation, monitoring and assessment
  - Evaluation towards minimum standard criteria
  - Monitoring the labour market of the graduates
  - Establishing and Advisory Boards of stakeholders
- Creating a quality culture
  - Internal monitoring
  - Handbook of Quality Management
  - Quality circle

The Quality Circle



Without assessment of the completed semester - the students cannot expect to commence on a well-planned and improved semester

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Looking Ahead

- Academic Members – enhancing the potential
  - Pursuing the potential of the Academic network
  - Providing opportunities and clear benefits of being an academic member
  - Facilitating interaction at national, regional and global level
  - Enhancing interaction between academia and professional practice.
- Surveying Education Database – interactive communication
  - Promoting updating and accessibility
  - Providing opportunities for interaction (curriculum design; research projects; etc)
  - Facilitating institutional development at regional level
  - Sharing initiatives on recruitment, gender equity, etc.
- Global Academic Partnership – building the capacity
  - Promoting Land Governance in support of society and the global agenda, including:
  - Positioning Infrastructures,
  - Spatial data Infrastructures,
  - Land administration infrastructures

FIG

COMMISSION 2

Thank you for your attention