Post-gradual education at the SUT Bratislava

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Education of surveyors in Slovakia

- ***Education of technicians***
- ***Pregradual education – Bc., MSc., PhD.***
- ***Postgradual education***

- ***History***
- ***State of the art***
- ***Future***

- ***Comparision – Slovakia vers. EU***

Education of Technicians

Education of technicians

- ***Tradition of professional education at the secondary (high) school level – 4 year duration,***
- ***Surveying schools, Construction (Architectural) Schools***
- ***4 schools with more than 20 years history 5 schools, education with 3-6 year only***
- ***Ca 250 graduated students/year***

- ***To much? Equivalent education in other countries? Future?***

Educ. of technicians - conclusion

- ***Long tradition***
- ***High number of graduated students – strong (good) technicians***
- ***Provide the profession – according the law and small bussines (trade) register***
- ***Association, union, etc. membership***
- ***No membership in Chamber of Surveyors***
- ***No QA, no obligatory CPD !!!***
- ***Technicians vers. Bc. ???***

Higher Education in Slovakia

History of the surveying higher education in Slovakia

- *Mining Academy – Banska Stiavnica (16. Century)*

- *University of Technology Bratislava – 1938*
  Construction Engineering
  Hydrotechnical Construction Engineering
  Surveying Engineering
- *University of Technology Košice - 1952*
- *Uni of Žilina – 1996*

General outlines for design of new study programmes in Slovakia

- *university law Nr.131/2002*
- *3 level education (Bc.,MSc. or eq., PhD.)*
- *credit system (eq. to ECTS)*
- *structure of specialisations (eq. to EU)*
- *accreditation of new study programs*
- *QA (obligatory quality measur. system, co-operation of students, membership in EUA)*

- *aim - mobility of students in SR (EU), diploma (degree) acceptance in EU*

Outlines for the harmonisation of the higher education in EU countries

- *heterogeneous student population*
- *progressive number of students*
- *economical background of EU countries*
- *new structure of the university education in Europe (Sorbone and Bologna declaration 1999, Prague 2001, Berlin 2003)*

- *aim - to build the homogeneous European education space*

Berlin outlines

- *project realisation to 2010*
- *start the 3-level system at 2005*
- *up to 2005 – to define the national system of quality control (tasks, institutions, student participation, external institutions, accreditation, international co-operation, networks atc.)*
- *joint the EHEA a ERA*
- *number of member countries – 40*
- *Bergen 2005 (Norway)*

Milestones in Geodesy and Cartography

- *FIG C2 – pregradual, post-gradual education, PCD, quality assurance (QA)*
- *CLGE - licence politic*
- *CLGE/FIG Seminar - Delft, november 2000,*
- *EUCEET – EU ERASMUS project civil engineering faculties - 1999*
- *EEGECS – EU ERASMUS – geodesy, cartography, geomatics and geography - 2002*

- *BSc. – 6 - 8 semester*
- *MSc. – 3 - 4 semester*
- *PhD. – 6 or more semester*

EEGECS
thematic network

European Education in Geodetic Engineering, Cartography and Surveying

Created to fulfil the willingness of Higher Education Institutions to enhance dialogue and exchange of information moving towards the creation of an *"European Area of Geodetic Engineering, Cartography and Surveying"*

2nd General Assembly 20th-21st February(Valencia)

EEGECS is also member of the TechnoTN Forum:

TechnoTN
2004

INFO

Outlines for the harmonisation of the surveying education in Slovakia

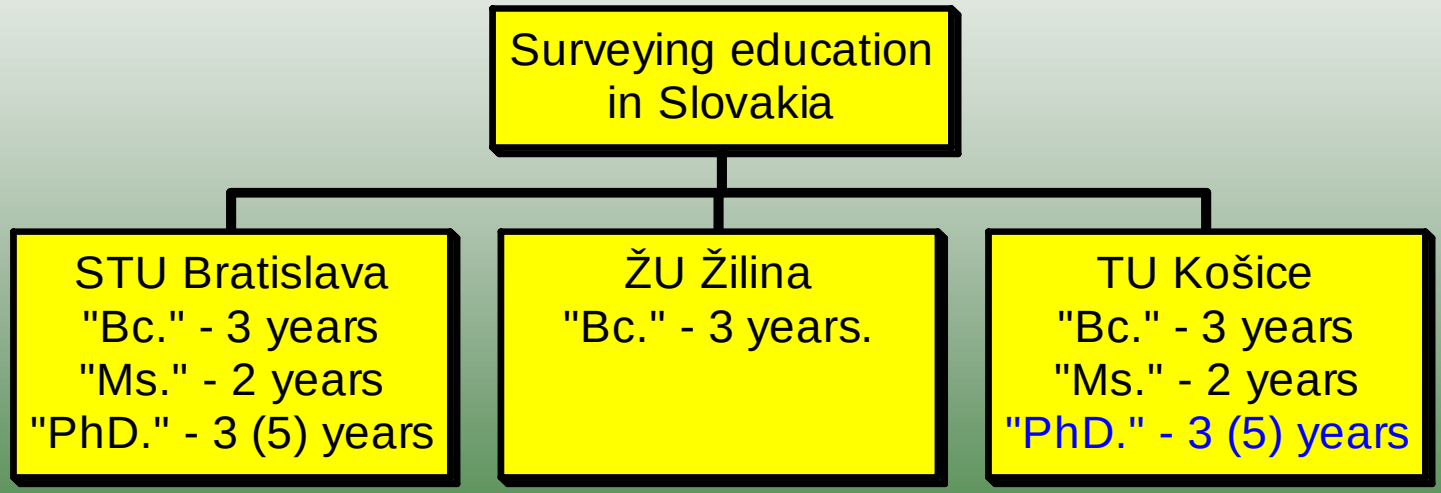
- *3 level education (Bc.,MSc. or eq., PhD.)*
- *ECTS – Bc. 180, MSc. 120, PhD.180*
- *EU professions structure*
- *accreditation of new study programs*
- *mobility of students*
- *diploma (degree) acceptation*

- *Ad hoc commission – desing of curriculum for each level 01-06/2003*

Surveying education after September 2005 in Slovakia

Accredited study programmes:

- ***Bc. level – 4 programmes***
- ***MSc. level – 2 programmes***
- ***PhD. level – 2 programmes***



QA in Slovak higher education

- ***transformation process - new legislative surrounding since 2002, April 01st***
- ***accreditation of new study programmes, according the EU structures of professions***
- ***university evaluation:***
  - research universities
  - universities
  - Bc. schools
- ***continual (obligatory) quality control by students***
- ***student and staff mobility***
- ***degree (diploma) acceptance in Europe and worldwide***

Educ. of technicians - conclusion

- ***Long tradition – one of the first courses offered***
- ***High number of graduated students – strong (good) technicians***
- ***Provide the profession – according the law and small bussines (trade) register***
- ***Association, union, etc. membership***
- ***Membership in Chamber of Surveyors – only for the MSc. level graduates***
- ***QA - yes, obligatory CPD organised by the Chamber***

Post-gradual Education in Slovakia

Post-gradual surveying education in Slovakia

- ***PhD study programmes***
- ***PG courses offered by Uni's***
- ***PG courses offered by another bodies (chamber, associations, etc.)***
- ***Seminars, conferences, web infos, etc.***

Curriculum of the PhD. course

Adviser:
Professor staf only

Study (36 ETCS):
Mathematics
Physic
Engin. surveying
Global geodesy and geodynamic
Geodetic networks
Cadastre and land management
GIS
Deformation analysis
Photog. and remot. sensing
Cartography

Research (100 ECTS):
PhD thesis included into research project

Lectures and practice (16 ECTS):
- min. 4 hours/week
- participation on projects

Publications (16 ECTS):
- min. 2 papers/year
- participation on projects

Graduation:
- state exam (12 ECTS)
- disertation, thesis approved by 3 professors

Post-gradual courses at the Faculty of Civil Engineering of the SUT

- ***EU supported PG course programme***
- ***28 CE and Surveying courses***
- ***Surveying courses:***
  - GIS,
  - cadastre,
  - engineering surveying,
  - special course for the Chamber
- ***Software – based on Moodle FW***
- ***Adequate hardware, parallel acces for 200 connection in each time***

GIS course

- ***Design and application of GIS***
- ***GIS as a effective tools of management***
- ***Data acquisition, management and analysis***
- ***Integration and interoperability of heterogeneous data structures***

Course for cadastre

- ***Structure of the national cadastre***
- ***Information system of the national cadastre***
- ***Digital cadastre, tools and their application***
- ***Quality analysis of the Slovak cadastre***
- ***Possibility of the Slovak cadastre for design of different IS (LIS, ISU, etc.)***
- ***Cadastre standardisation***

GPS course

- ***State of the art, perspectives, new developments***
- ***Reference frames***
- ***Measurement principles, data processing***
- ***Permanent GPS networks***
- ***New applications***

Engineering Surveying course

- ***Technical regulations CE vs Surveying***
- ***GPS technology application in engineering surveying***
- ***New technologies in engineering surveying***
- ***Photogrammtery vs engineering surveying***
- ***Automated measuring systems***
- ***Deformation measurement and analysis***
- ***TLS***

Special course for Chamber

- ***Preparation for exam required for the chamber membership***
- ***Legal and technical regulations***
- ***IS of geodesy, cartography and cadastre***
- ***New developments in the field of geodetic networks, data analysis, GPS, permanent networks, etc.***
- ***Project management***
- ***International co-operation, EU regulations***

Conclusion

- *Realisation from April – November 2006*
- *Ca 500 participants*
- *Preparation of course materials for acreditation by the Ministry of Education*
- *Development of e-Learning tools*

Departments

- ***Dep. of Surveying SUT Bratislava***
- ***Dep. of Geodesy SUT Bratislava***
- ***Dep. of Mapping and Land Consolidation (Management) SUT Bratislava***
- ***Dep. of Surveying ŽU Žilina***
- ***Dep. of Geoinformatic and Mine Surveying TU Košice***