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**26th Conference of Rectors and Presidents of
European Universities of Technology
ETH Zurich, July 5-6, 2007**

**INTERACTION BETWEEN ENGINEERING
EDUCATION AND INDUSTRIAL R&D ACTIVITY
AT THE BME**

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BME in Figures

1782 Institutum Geometricum – Hydrotechnicum

1949–2000 Technical University of Budapest

2000– Budapest University of Technology and Economics

❖ **8 Faculties,
80 Departments**

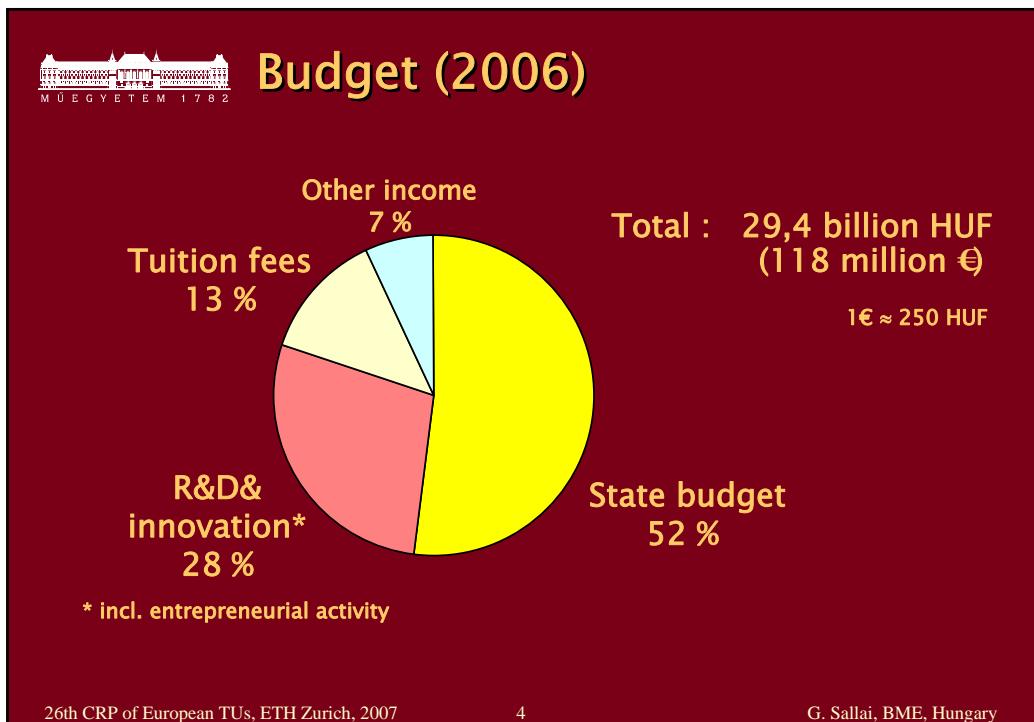
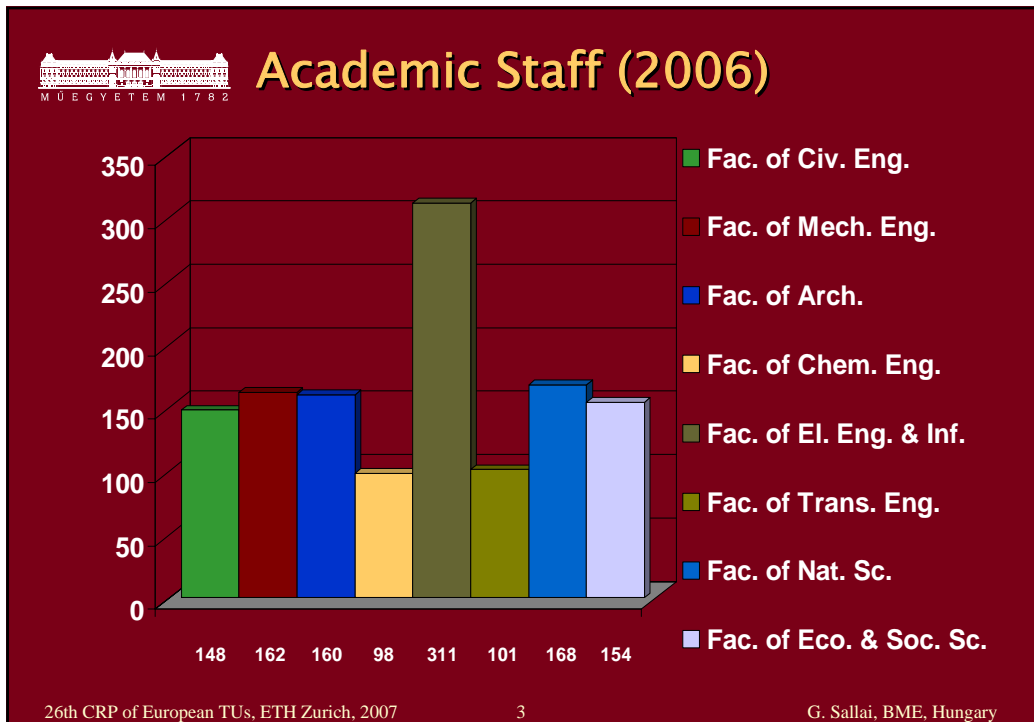
Faculties:

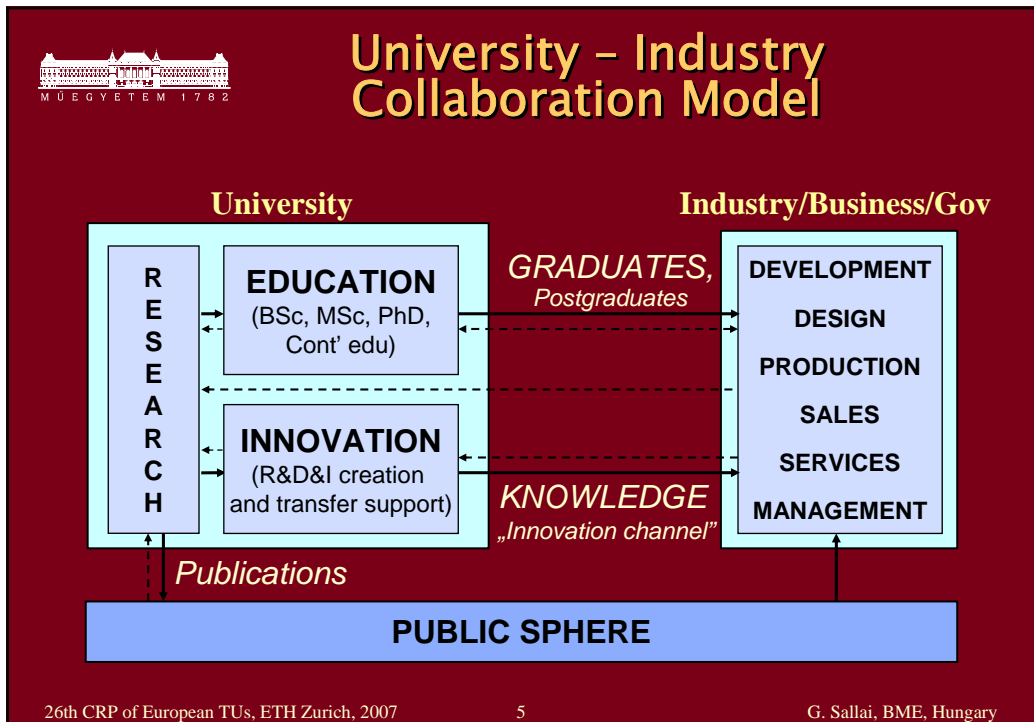
❖ Civil Engineering	(1782)
❖ Mechanical Engineering	(1871)
❖ Architecture	(1873)
❖ Chemical and Bioengineering	(1873)
❖ Electrical Engineering and Informatics	(1949)
❖ Transportation Engineering	(1951)
❖ Natural Sciences	(1998)
❖ Economic and Social Sciences	(1998)

❖ **24 000 Students**

❖ **Academic Staff: 1300, with scientific qualification: 700**

❖ **Web Popularity Ranking: 81st in Europe (2007)**





- ## BME as Research University
- ❖ Competition and grants for basic and applied research
 - National (National Office for Research and Technology,..)
 - International (EU's RTD Framework Programmes,...)
 - ❖ R&D for the industry and government
 - Bilateral strategic agreements
 - Bilateral specification-based contracts, partly based on Contribution for Innovation by Act
 - ❖ Activity of the Scientific Workshops
 - Doctorate Schools (15)
 - Departmental and University research groups and inter-university cooperation
 - Research groups (12) of Hungarian Academy of Sciences at the BME
- 26th CRP of European TUs, ETH Zurich, 2007 6 G. Sallai, BME, Hungary



BME University Research Centers Consortia with industrial and academic partners

- 3G/4G Mobile Communications R&D&I Centre
- Information Technology Innovation and Knowledge Centre
- Inter-University Cooperative Research Centre for ICT
- Advanced Vehicle Control Knowledge Centre
- Biomedical Engineering Knowledge Centre
- Biomechanical Cooperative Research Centre
- Cooperative Research Centre for Intelligent Materials



Relations – Multinational and *national* companies

- Alcoa
- Audi
- *Budapest Gas Works*
- Continental Temic
- Ericsson
- Flextronics
- General Electric
- Hewlett-Packard
- *Hungarian Electric Works*
- Hungarian Oil Co. (MOL)
- *Hungarian Posts*
- Hungarian Telekom
- IBM
- Intel
- Knorr-Bremse
- Mentor Graphics
- Microsoft
- Nokia
- Oracle
- *Paks Nuclear Power Station*
- Pannon GSM
- SAP
- Siemens
- Visteon

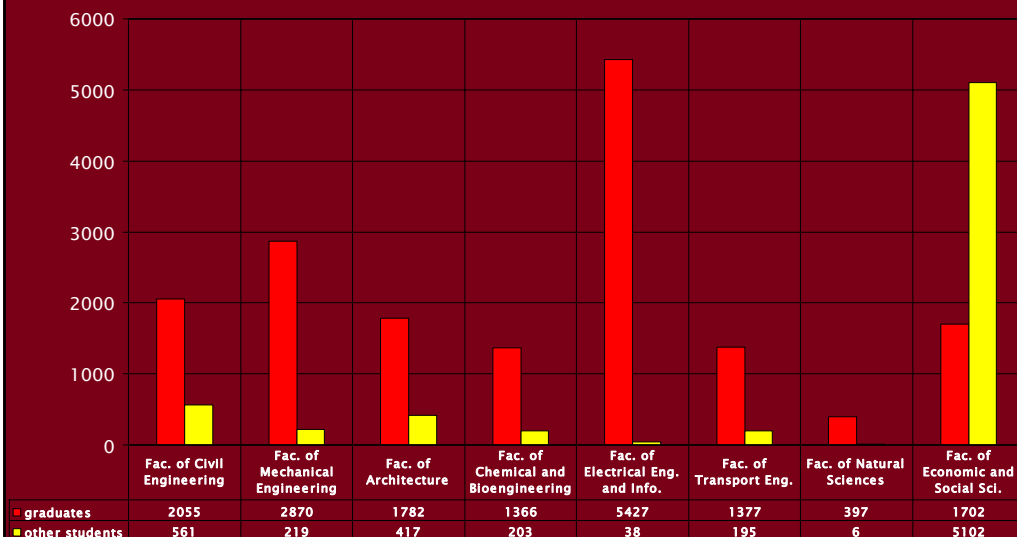


Education at the BME

- ❖ Traditional Dipl. Eng. Programs (MSc, 5 years) – in Hungarian
- ❖ From 2005/2006 two-cycle linear higher education system in Hungary (Bologna process). Engineering education in general:
 - 7 semester BSc programs (210 credits)
 - 4 semester MSc programs (120 credits)
- ❖ PhD Programs (3 years)
- ❖ BSc, MSc and PhD curricula in English, partly in German, French, Russian
- ❖ Since 1994 European Credit Transfer Scheme
- ❖ Programs are qualified by the Hungarian Accreditation Body (MAB)
- ❖ Continuing Engineering Education, postgraduate courses, MBA, etc.



Students attending the BME (2006)





Doctorate Schools (PhD)

~900 PhD students/candidates

- | | |
|--|---|
| Faculty of Civil Engineering | • Civil Engineering Sciences |
| | • Earth Sciences |
| Faculty of Mechanical Engineering | • Mechanical Engineering Sciences |
| Faculty of Architecture | • Science of Architecture (DLA) |
| | • Building Sciences |
| Fac. of Chemical and Bioengineering | • Chemistry and Chemical Engineering |
| Faculty of Electrical Engineering
and Informatics | • Electrical Engineering |
| Faculty of Transportation Engineering | • Information Technology |
| | • Transport Science |
| | • Vehicles and Mobil Machines |
| Faculty of Natural Sciences | • Mathematics and Computer Science |
| | • Physics |
| Faculty of Economic and
Social Sciences | • Management, Economy and Organizations |
| | • History of Technology and Science |
| | • Social Sciences, Psychology |



Continuing Engineering Education at the BME

- **Institute for Continuing Engineering Education (MTI)**
 - Idea of life long learning of engineers in 1924
 - Established in 1939 (1st in Europe)
 - Qualified by MAB in 2001 (EN ISO 9001:2001)
 - „UNESCO Chair” award in 2000
 - Member of SEFI, IACEE, FEANI...
 - Aim: full CEE program, fitting to the market demand**
 - incl.: Postgraduate engineering courses,
 - Economic, management and IT studies,
 - Courses for special qualification
 - (e.g. building surveyor, quality manager)
 - Special EU topics (legal, economic, R&D....)



Institute for Continuing Engineering Education (MTI) (con't)

The forms of CEE at the MTI:

- Courses in the time frame of university semesters initiated by the experts from BME and outside
- Courses ordered by firms, industries, professional organizations: program, scheduling, exam... according to the order
- Complex courses with certificate/license/authority e.g. quality manager (EOQ), building surveyor, real estate agent/manager/assessment
- Qualification for the „Eur-Ing” in FEANI register (633 Eur-Ing at Dec. 2006)

Annually in average:

80 courses, 1750 participants (15...40/courses)



Other forms of Continuing Engineering Education at the BME

• Postgraduate education in a specialization

Organized by the Faculties for engineers

4 semesters with exams, diploma-work, certificate

63 curricula, e.g.: welding, pharmacochemistry, manager in energetics, R&D in EE, city-planning, color-dynamics, reactor-technology, financial IT

Master in Business Administration (MBA)

Since 1992 with Heriot-Watt University, since 1996 gradually redesigned with the assistance of American institutions (University of Rochester, ...)

MBA executive, professional, etc. curricula

Annually in average: 500 MBA diplomas



Nobel laureates of BME

Dénes GÁBOR (1900 – 1979)

holography, in 1971



Jenő WIGNER (1902 – 1995)

theoretical physics, in 1963



György OLÁH (b:1927)

carbolic chemistry, in 1994



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Thank for your kind attention!



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