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4. The Bologna process - the position of the academic world

4.1 Three recommendations of CESAER and SEFI

In February 2003, CESAER (The Conference of European Schools for Advanced Engineering Education and Research) and SEFI (The European Society for Engineering Education), jointly organised a seminar at Helsinki University of Technology. This concluded with "Communication of CESAER and SEFI on the Bologna Declaration".

In this Communication, they made eight recommendations. The first three are the most relevant for our discussion:

1. *The special role and features of engineering must be taken into account in the Bologna Process.*
2. *In the scientifically oriented programmes the students should normally be educated to the level of the second degree. There must continue to be provision for an integrated route to second cycle Master level.*
3. *The specific qualities of the presently existing application oriented first cycle degree must be recognised and safe-guarded, with bridges to second cycle programmes being provided.*

4.2 EUCEET position on the implementation of the Bologna Declaration in civil engineering education

EUCEET (European Civil Engineering Education and Training) is a Thematic Network initiated by the Technical University of Civil Engineering of Bucharest and coordinated by the Ecole Nationale des Ponts et Chaussées Paris.

EUCEET was granted a 3-year contract (1 September 1998 - 31 August 2001) within the third round of applications for Thematic Networks under the SOCRATES programme.

On September 2001, the European Commission approved the one-year extension of EUCEET for dissemination purposes (1st October 2001 - 30th September 2002).

On 24th July 2002, Ecole Nationale des Ponts et Chaussées Paris, coordinator of the EUCEET Thematic Network Project, was notified by the European Commission that the application for a new EUCEET II project had been approved.

In 2003/ 2004, which is the second year of EUCEET II, the Thematic Network Project numbered 137 partners from 33 countries.

When the EUCEET II Management Committee (MC) met in Ciudad Real on 19th September 2003 for the first time the proposal was made to adopt a position statement on the implementation of the Bologna Declaration in civil engineering education. In the months following the meeting, the general lines of such a statement were defined and a draft was circulated among the MC members.

At the next Management Committee meeting, held in Paris on 16th February 2004, the following statement was adopted with clear majority:

"EUCEET is supporting and encouraging the application of the idea of two-tier education system in Civil Engineering as suggested in Bologna Declaration.

The adoption of a system based on two main cycles, whenever takes place, must take into consideration the specificity of the civil engineering education and profession. Civil engineers perform and provide services to the community with significant implications for public safety and health. As a consequence, the first cycle in civil engineering education shall be relevant to the labor market and shall ensure graduates with a level of competences tuned to the substantial responsibilities of the profession. A duration of 4 years (or the equivalent of 240 ECTS credits) seems to fit that purpose.

A 4-year duration of the first cycle in civil engineering education is aimed also at facilitating transnational recognition of degrees and professional mobility of European civil engineers. In

this respect, due consideration had to be given to the fact that various alliances between engineering organisations, such as Washington Accord and the Engineers Mobility Forum have established that the required academic component of the qualification of a professional engineer should be 4 or 5 years full time study in University.

The existing integrated 5-year curricula in civil engineering, leading straight to a Master's degree, is also compatible with the letter and spirit of the Bologna Declaration and with the vision of a European Higher Education Area."

4.3 A clear rejection of Bologna action line 2 coming from Greece

In the opening session of the First General Assembly of EUCEET II, on 20th February 2003, the then Rector of the National Technical University of Athens, Prof. Themistocles Xanthopoulos, gave a talk on "Market Globalization, European University Education and the Bologna Declaration: Background Policy Analysis, Positions and Proposals" [6] in which the position in Greece regarding the Bologna Declaration was clearly expressed. Here are some opinions regarding the action line 2:

"Any splitting of the existing structure into two cycles, the undergraduate and the postgraduate, de facto downgrades the undergraduate cycle to that of the Schools of Higher Professional or Vocational Training, given that it is not possible to equip with substantial professional skills in the short period of this cycle without at the same time the shrinkage of the background scientific knowledge, that is without the actual betrayal of the scientific substance of the University degree.

It is, besides, at least unreasonable to claim that it is possible to decrease the duration of studies without downgrading their university nature, at a time of pressing demands, both from students and academic staff, for an increase of the duration of university studies due to the explosive increase of knowledge in the applied sciences and technology, as well as the recognition by the relevant professional bodies of the inadequacies of the Bachelor's degree, as a university diploma, in the labour market.

We reject explicitly the main objective of the Bologna Declaration, namely the compulsory and universal division of all University courses into two cycles ..."

5. Civil engineering education in Europe in 2003 - 2004, four years after Bologna

Some comments are necessary on the changes brought by the implementation of the action line 2 of the Bologna Declaration. Before proceeding it is, however, worth recalling the full extent of action line 2:

"Adoption of a system of easily readable and comparable degrees, also through the implementation of the Diploma Supplement, in order to promote European citizens employability and the international competitiveness of the European higher education system. Adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a maximum of three years. The degree awarded after the first cycle shall be relevant to the European labour market as an appropriate level of qualification. The second cycle should lead to the master and/ or doctorate degrees as in many European countries".

Table 1 presents the evolution of degree structures at university or 'university-like' institutions providing civil engineering education. A clear trend, from one-tier to two-tier, can be observed in the degree structures at universities. Since 1999-2000, the integrated, one-tier programmes leading straight to a degree equivalent to a Master degree, have been already

replaced by two-tier programmes in the Czech Republic, Netherlands and Slovakia, but a similar move is expected in the near future in many other countries.

Table 1

Degree structures at universities

Country	1999 / 2000		2003 / 2004		foreseen for 2005 and beyond	
	One-tier	Two-tier	One-tier	Two-tier	One-tier	Two-tier
AT Austria	X		X			X
BE Belgium	X		X			X
BE Wall Belgium	X		X			X
BG Bulgaria	X		X ¹	X	X ¹	X
CZ Czech Republic	X			X		X
DE Germany	X		X		X ²	X
DK Denmark	X		X			X
EE Estonia		X		X		X
ES Spain	X		X			X
FI Finland	X		X			X
FR France	X		X		X	
GR Greece	X		X		X	
HU Hungary	X		X			X
IE Ireland		X		X		X
IT Italy	X			X		X
LT Lithuania		X		X		X
LV Latvia		X		X		X
NL Netherlands	X			X		X
NO Norway	X				X ³	X
PL Poland	X		X		X ⁴	X ⁴
PT Portugal	X		X		X ⁵	X
RO Romania	X		X			X
RU Russia	X		X			X
SE Sweden	X					X
SI Slovenia	X		X			X
SK Slovakia	X			X		X
TK Turkey		X		X		X
UK United Kingdom	X			X		X

¹ Only at the University of Architecture, Civil Engineering and Geodesy, Sofia

² At certain Technical Universities

³ Only at the Norwegian University of Science and Technology, Trondheim

⁴ At certain Technical Universities

⁵ At certain Universities