

INTERNATIONAL FORUM
«Higher Education Quality Assurance»

Moscow 20-22.11.2007

SOCRATES THEMATIC NETWORKS:
Contributions to Mutual Knowledge and
Recognition of Engineering Education in Europe

Elisa Guberti, Università di Firenze – Facoltà di Ingegneria

Randi Anita Hagaseth, Università di Firenze – Facoltà di Ingegneria



TREE Thematic Network
Teaching and Research in Eng. in Europe

Università di Firenze
Facoltà di Ingegneria



Table of Contents

1. The Framework: the European Funded Projects
 2. Socrates-Erasmus Thematic Networks
 3. Some Examples of Successful Thematic Networks and their Contribution Towards a European Accreditation System
 - 3.1 H3E Thematic Network (Higher Engineering Education in Europe) 1998-2000
 - 3.2 E4 Thematic Network (Enhancing Engineering Education in Europe) 2000-2004
 - 3.3. TREE Thematic Network (Teaching and Research Engineering in Europe) 2004-2007
 - 3.4. Techno TN Archipelago
 4. TUNING Educational Structures in Europe
 5. Conclusions
-

1. The Framework: the European Funded Projects

ERASMUS is the higher education Action of SOCRATES II programme, as well as of the Lifelong Learning Programme, as it is denominated for the next period (2007-2013).

It seeks to enhance the quality and reinforce the European dimension of higher education by encouraging transnational cooperation between universities, boosting European mobility and improving the transparency and full academic recognition of studies and qualifications throughout the Union.

2. Socrates-Erasmus Thematic Networks

TN are one of the main innovations of the Socrates-Erasmus programme. They were created to promote forward-looking, strategic reflection on the scientific, educational and institutional issues in the main fields of higher education.

Generally speaking, a Thematic Network is a co-operation between departments of higher education institutions and other partners (e.g. academic organisations or professional bodies).

2. Socrates-Erasmus Thematic Networks

The main aim of a TN is to identify how to enhance quality and to define and develop a European dimension within a given academic discipline or study area.

Alternatively, it can take up a topic of an inter- or multidisciplinary nature, or other matters of common interest, such as university management or quality assurance.

3. Some Examples of Successful Engineering TN and their Contribution Towards a European Accreditation System

- ❑ H3E Thematic Network (Higher Engineering Education in Europe) 1998-2000
 - ❑ E4 Thematic Network (Enhancing Engineering Education in Europe) 2000-2004
 - ❑ TREE Thematic Network (Teaching and Research Engineering in Europe) 2004-2007
 - ❑ Techno TN Archipelago
-

3.1 H3E Thematic Network (Higher Engineering Education in Europe) 1998-2000

- a) Put forward the common elements that existed across European Higher EE Systems in the following six main areas:
 - Motivation for Higher Engineering Studies
 - Types & Forms of Higher Engineering Education and Core Curricula
 - Quality Assurance and Mutual Recognition
 - Internationalisation
 - Educational Methods to foster Life-long learning
 - Continuing Education
 - b) Act in favour of a co-ordinated approach in facing the above mentioned challenges.
 - c) Support the following specific case studies likely to bring added value and enrich the work carried out in connection with points above.
 - JEEP Teams - Joint European Engineering Project Teams
 - Pie - Plastics in Engineering
 - Protect - ProTecT Consortium: Technical Textiles.
-

3.1 H3E Thematic Network (Higher Engineering Education in Europe) 1998-2000

The Working Group of H3E on “Quality Assurance and Mutual Recognition” investigated how far it is possible to classify, into a relatively small number of basic types, the various curricula and schemes of postgraduate professional training. The aim was that of facilitating mutual recognition more than what was usual at that moment. In this the Group was fully mindful of the many bodies which already have interests in this area; the H3E project sought to catalyse their interaction, to the benefit of all.

The ultimate result of the work of this Group has been a proposals for a system of accreditation and suggestions on how it could be implemented in practice.

3.2 E4 Thematic Network (Enhancing Engineering Education in Europe) 2000-2004

E4 offered a wide perspective over many Engineering Technology education fields deliberately chosen to be not branch specific. Innovative contributions to international dimension and curriculum development, high standards, quality insurance and accreditation, use of ICT tools were the main subjects of the five Thematic Network activities, denominated as follows:

- A1) Employability through innovative curricula;
 - A2) Quality assessment and transparency for enhanced mobility and trans-European recognition;
 - A3) Engineering professional development for Europe;
 - A4) Enhancing the European dimension;
 - A5) Innovative learning and teaching methods.
-

3.2 E4 Thematic Network (Enhancing Engineering Education in Europe) 2000-2004

Activity 2 key issue (essential for the development of the European dimension of engineering education, from the point of view of all stakeholders): the way and means to enhance recognition throughout Europe, with the main aim to facilitate employability and (physical and virtual) mobility of engineers.

3.3. TREE Thematic Network (Teaching and Research Engineering in Europe) 2004-2007

The four main activities of TREE are:

- Line A: *Tuning*. Fine-tuning new curricula for the two-tier structure of higher education; developing tools for quality assessment, assurance, and accreditation; extending ECTS;
 - Line B: *Education and Research*. Monitoring the status and promotion of doctoral studies; promoting the role of research activity in engineering education; endorsing the value of research-oriented project work;
 - Line C: *Enhancing the attractiveness of EEE*. Attracting young people, especially women, to engineering education also with initiatives such as joint/double degrees;
 - Line D: *Sustainability*. Sustaining engineering education institutions by developing continuing education, open, and distant learning opportunities; studying ways to make valuable tools, identified during the TN.
-

3.3. TREE Thematic Network (Teaching and Research Engineering in Europe) 2004-2007

The activities carried out in particular by Line A of TREE Thematic Network gave a great contribution towards the creation of a European accreditation system and new initiatives to reach this goal are actually still taking place.

A rather novel way of international accreditation of engineering degree programmes has been elaborated by the EUR-ACE (Accreditation of European Engineering Programmes and Graduates) Project (cfr companion paper "EUR-ACE and ENAEE: a Proposal and a Tool for a European System for Accreditation of Engineering Education" by G. Augusti, C. Borri and E. Guberti).

3.4. Techno TN Archipelago

The Archipelago is made up by a consortium of leading university institutions co-ordinating European ERASMUS Thematic Networks. Through these TN some 850 European Higher Education institutions are involved, and considering their links with professional organisations, students, local, regional and national authorities and decision-makers, social partners, etc. This Archipelago represents a real European dimension in education and will have a lasting and widespread impact across a large range of institutions.

The TN Archipelago (www.upv.es/TechnoTN/), is mainly aimed coordinating TNs and organising European TechnoTN Expert Fora.

4. TUNING Educational Structures in Europe

The main aim and objective of the project is to contribute significantly to the elaboration of a framework of comparable and compatible qualifications in each of the (potential) signatory countries of the Bologna process, which should be described in terms of workload, level, learning outcomes, competences and profile.

The Tuning project has developed a methodology and a common language, reflected in the Berlin Communiqué (19 September 2003), which can serve as a common basis, and will make it possible to develop an overarching European framework of qualifications

4. TUNING Educational Structures in Europe

The activities of the E4 Thematic Network were strictly connected with the “Tuning” activities. The promoters of the five Activities and the Coordinator of the TN E4 have been part of the Engineering Synergy Group (SG) of the Tuning project.

The Engineering SG has been formed with the declared goal of taking advantage of the experience being obtained within the TN E4 and within other TN’s in the field of Engineering Education such as H3E and EUCEET (European Civil Engineering Education and Training, 1998-2001).

5. Conclusions

The Thematic Networks, with the support of the General Directorate of Education and Culture of the European Commission, have contributed during all these years in many aspects of general interest for the university education: harmonising the studies (the Tuning Project in general, the other projects in engineering education), the development of life-long learning, use of ICT, appraisal of the quality, accreditation, innovation of the learning methods, and last but not least, the birth of a network of institutions in continuous contact and trusting each other.

5. Conclusions

Given the extreme rapid changes in the field of Engineering Education it must be highlighted that the contribution of SOCRATES Thematic Networks is to be considered only a small contribution.

It appears however that the ambitious goals of H3E and E4 before and of TREE later have put solid bases for the creation of an effective instrument with the main aim of following the evolution of Engineering Education in Europe.

Thank you for your attention!

Elisa Guberti

Head of the International Relations Office

Facoltà di Ingegneria – Univ. di Firenze

Via di S. Marta 3

50139 Firenze

T. +39.055.4796543

Fax +39.055.4796544

intreling@unifi.it

tree@unifi.it

www.unifi.it/tree
