

THEME B: ENHANCEMENT OF THE COOPERATION BETWEEN CIVIL ENGINEERING FACULTIES IN EUROPE BY THE DEVELOPMENT OF JOINT DEGREES

Report of Working Group
Radu BĂNCILĂ¹

1. INTRODUCTION

Due to today's highly competitive job market and the globalization on one part and unstable job market on the other part, the educational process of young people is more important than ever. New possibilities to improve qualifications at higher education level are needed.

The enlargement of the European Union marked an enhancement of the study periods abroad in EU countries. It has become clear that in spite of the geographical location, language and culture differences between European countries, there is much more which unites than divides us.

In the European area of higher education, the international collaboration of universities requires the existence of a system of easily comprehensible and comparable degrees, which will lead to the improvement of the mobility of students and teachers.

Different possibilities were created, like the **Erasmus Programme** (*European Region Action Scheme for the Mobility of University Students*) which is a European Union (EU) student exchange programme established in 1987. The Erasmus Programme, together with a number of other programmes, was incorporated into the SOCRATES Programme established by the European Commission in 1994 and ended on 24 January 2000, to be replaced by the Lifelong Learning Programme (2007–2013).

Student exchange programmes, under Erasmus, provide the possibility of studying for one or two semesters at a partner university in another country, after which the student returns to his mother University. However, under this type of exchange programme the student cannot usually receive degree from the host University.

In the last decades, however, a new concept in educational cooperation began to take shape between some Universities, called the **Double Diploma**. These programmes allow students to earn simultaneously degrees from two different universities. With the acquisition of a double diploma, the graduate increases his chances for a good job, because the degree satisfies the

¹ Chairman of the Working Group for the Theme B;
Prof. Dr. at "POLITEHNICA" University, Timisoara, ROMANIA,

requirements of both institutions and will be accepted in two countries. Generally speaking, most popular academic disciplines for collaborative degree programmes are Business and Management and Engineering.

The complementarity of two study courses and the qualities that the students develop within the framework of this in-depth intercultural experience, lead to a new type of engineer, well prepared to meet the international challenges posed by modern companies. During these international courses the student spends a certain amount of time at a partner University abroad. This arrangement is based on a cooperation-agreement between two (or more) universities. In contrast to the Erasmus programme, in this case the same performance from both foreign and from local students is expected. Good language ability already at the beginning of the studies is therefore an important condition for attending an international course. By the end of studies, students who lived in two different countries and were confronted with new and different experiences are better prepared for the future job in international companies.

Under the theme “*Curricula issues and developments in civil engineering*”, the Specific Project 1 within EUCEET II prepared, on the base of a large consultation of partners, “*Studies and recommendations on core curricula for various degree programmes*”. A natural continuation of this activity is the development of joint degrees at both first cycle and second cycle. EUCEET is in a very good position to promote among its partners, and not only, such development, which will have a very favorable impact on the mobility of students and of future engineers.

The present report describes the possibilities and the general conditions of obtaining a Joint Degree or a Double Diploma in Civil Engineering, in the context of the internationalization strategy of the higher education system and according to the Bologna Process. Some examples in this direction are given and a case study concerning the students from the “Politehnica” University of Timisoara / Romania and the Technical University of Munich / Germany is presented. Finally, a proposal for a network involving EUCEET partners in a Double Diploma programme is presented.

2. DEFINITION OF TERMS

In the *Glossary of Terms Relevant to Higher Education Engineering*, prepared within the Thematic Network TREE – www.unifi.it/tree - the following definitions are given:

Double (or multiple) Degree:

A specific joint degree where the higher education institutions involved award their own degree to the students who fulfilled the prescribed requirements.

Joint Degree:

A higher education qualification issued jointly by two or more higher education institutions on the basis of a joint study program.

Other definitions were presented by Christoph Steber, Technical University of Munich [1]:

- **Joint** Integrated programme with one document (diploma) at the end:
 - Same duration at each university
 - Curricula are rigid/fixed, changes are difficult
 - Full recognition of the study.
- **Dual** - Mainly like a "Joint" but avoids the legal restrictions:
 - No extension
 - Often in English
 - Preset Programme (e.g. the Erasmus Mundus programme would be typically a dual).
- **Double** - Prolongation of the studies
 - Not preset
 - Student follows the normal courses
 - Two separate degrees
 - Different didactic methods of teaching
 - Language of instruction is often the language of the country.

As Kuder and Obst observed [2], a multitude of meanings exists behind the term *joint*, *dual* or *double degree*). Often enough these terms can be found to refer to programs that combine degrees in two academic disciplines yet are carried out entirely within one and the same higher education institution. Also, there is often a confusion about the difference between the terms dual and double. While in some countries the term *dual degree* is used more commonly for degree programs that feature structured curriculum cooperation with a foreign partner institution, other countries might prefer the term *double degree*. To avoid further confusion, for the purposes of the survey undertaken by the Working Group B, the definition of what constitutes an (international) *joint/dual/double degree* was brought down to two basic categories:

- A. **joint degree program**: students study at (at least) two higher education institutions and receive upon completion of the study program a single degree certificate issued and signed jointly by all the participating institutions;
- B. **dual or double degree program**: students study at (at least) two higher education institutions and receive upon completion of the study program a separate degree certificate from each of the participating institutions.

Double degrees appear to be much more common than joint degrees. According to a recent report [2], 26% of European institutions offer joint

degrees, and 76% offer double degrees. About half of the European institutions offer joint and double degrees in the field of business and management; the second most common academic discipline was engineering, with 29% of EU analyzed institutions.

3. WORKING GROUP B – ACTIVITY

The first meeting of the working group related to Theme B took place during the Second EUCEET III General Assembly in Warsaw (23-24 October 2008), on Friday 24 October 2008. Participants freely joined the working group, leading to the following attendance list:

| Country | Name | Institution |
|---------|---------------------------|--|
| BE | Jean Berlamont | Katholieke Universiteit Leuven |
| CZ | Vaclav Kuraz | Czech Technical University Prague |
| DE | Carsten Ahrens | Fachhochschule Oldenburg |
| DK | Jacob Steen Moller | Denmark University of Technology Lingby |
| FR | Thibaut Skrzypek | Ecole National des Ponts et Chaussées Paris |
| FR | Richard Kastner | Institut National des Science Appliquées de Lyon |
| FR | Le Tallec Bernard | Institut Supérieur du Batiment et des Travaux Public Marseille |
| FR | Fabrice Emeriault | Institut National des Science Appliquées de Lyon |
| GR | Constantine Papatheodorou | Technological Educational Institute of Serres |
| GR | Stephanos Dritsos | University of Patras |
| HL | Ellen Touw | Delft University of Technology of Netherlands |
| HU | Aniko Csebfalvi | Janus Pannonius University Pecs |
| LV | Juris Smirnovs | Technical University Riga |
| PL | Marta Kosior | Bialystok Technical University |
| PL | Piotr Berkowski | Wroclaw University of Technology |
| PT | Ryszard Kowalczyk | University of Beira Interior Covilha |
| RO | Iacint Manoliu | Technical University of Civil Engineering Bucharest |
| RO | Irina Lungu | “Gheorghe Asachi” Technical University Iasi |
| RO | Doina Verdes | Technical University Cluj-Napoca |
| TR | Ozgur Yaman | Middle East Technical University Ankara |

After the foundation of the Working Group in Warsaw, communication between members were established by e-mail.

Within the Theme “*Enhancement of the cooperation between civil engineering faculties in Europe by the development of joint degrees (Double Diploma)*” a Workshop was held in Timisoara on 5th June 2009, being attended by the representatives of the host institution (University “Politecnica” Timisoara) and of the Technical University of Civil Engineering Bucharest and of the Technical University “Gheorghe Asachi” Iasi. Guidelines for a double diploma programme in civil engineering to involve EUCEET members, based

on the experience of the programme developed by the Technical University Munich and University “Politecnica” Timisoara, were discussed.

Information on the activity of the Working Group B and discussions on the joint degree programmes were on the agenda of all meetings of the Management Committee which took place between the General Assemblies in Warsaw and Paris:

- Barcelona (6 February 2009);
- Edinburgh (19 June 2009);
- Zilina (26 October 2009)

The final meeting of the Working Group B, scheduled on 19th November 2009 during the last EUCEET III General Assembly in Paris, was attended by:

| Country | Name | Institution |
|---------|--------------------------|--|
| BG | Kosta MLADENOV | University of Architecture, Civil Engineers and Geodesy Sofia |
| CY | Nicos NEOCLEOUS | Civil Engineering Associations Cyprus |
| CZ | Josef MACHACEK | Czech Technical University Prague |
| CZ | Vaclav KURAZ | Czech Technical University Prague |
| DE | Carsten AHRENS | Fachhochschule Oldenburg, |
| DK | Cristian FRIER | Aalborg University |
| FI | Juha PAAVOLA | Helsinki University of Technology |
| FR | Richard KASTNER | Institut National des Science Appliquées de Lyon |
| FR | Bernard LE TALLEC | Institut Supérieur du Batiment et des Travaux Public Marseille |
| FR | Georges PILOT | National Council of Engineers and Scientists in France |
| FR | Francois G. BARON | National Council of Engineers and Scientists in France |
| GR | Stephanos DRITSOS | University of Patras |
| GR | Constantine PAPTAEODOROU | Technological Educational Institute Serres |
| GR | Pericles LATINOPOULOS | Aristotle University Thessaloniky |
| GR | Errikos MOURATIDIS | Technological Educational Institute Serres |
| HU | Aniko CSEBFALVI | Janus Pannonius University Pecs |
| HU | Gyorgy FARKAS | Budapest University of Technology and Economics |
| HU | Antal LOVAS | Budapest University of Technology and Economics |
| IT | Diego LO PRESTI | University of Pisa |
| LT | Vincentas STRAGIS | Vilnius Gediminas Technical University |
| NL | Ellen TAUW | Delft University of Technology |

| Country | Name | Institution |
|---------|-------------------|---|
| PL | Anderj LAPKO | Bialystok Technical University |
| PT | Fernando BRANCO | High Technical Institute of Lisbon |
| RO | Iacint MANOLIU | Technical University of Civil Engineering Bucharest |
| RO | Daniela PREDA | Technical University of Civil Engineering Bucharest |
| RO | Johan NEUNER | Technical University of Civil Engineering Bucharest |
| RO | Radu BANCILA | University "Politecnica" Timisoara |
| RO | Doina VERDES | Technical Univeristy Cluj Napoca |
| SK | Josef DICKY | Slovak University of Technology Bratislava |
| SL | Stojan KRAVANJA | University of Maribor |
| TR | Cenk ARHAN | Istanbul University |
| UK | Ian MAY | Heriot-Watt University |
| UK | David Lloyd SMITH | Imperial College London |

In the beginning of the Working Group meeting, the chairman made a brief presentation of the activities performed since the foundation of the Working Group. Hereinafter, the chairman presented the draft of the Report for the Theme B, asking for suggestions regarding its content, before the last presentation scheduled during the General Assembly.

Some further clarifications were asked by the participants, especially concerning the extent of the network, the recruitment of students, the assurance of adequate funding, language and sustainability of the program. The slide version of the final Report was presented on 20th of November 2009 in the General Assembly of EUCEET III.

4. JOINT AND DOUBLE DEGREES IN ENGINEERING PROGRAMMES ACROSS EUROPE

There is a multitude of joint and double degrees in engineering programmes in the European Universities. In the following, some of them are presented.

TIME (Top Industrial Managers for Europe) is a European network of leading Engineering Schools, which has the aim to train high-potential graduates for the future demand of industrial leading-positions. The TIME network was created in 1989 at Ecole Centrale Paris, a leading French Grande Ecole with 16 founding members. Currently, the network has 46 members from 20 different countries.

As founder of the TIME network, the Ecole Centrale Paris welcomes each year over 100 TIME-Students. When a student is arriving at the ECP he has

already successfully completed at least two years of studies at his/her home university and will start together with the French students the “*tronc commun*”. The “*tronc commun*” includes the first two years of studies at ECP in order to obtain deeper knowledge not only in engineering related fields, but also in soft-skills. Besides Physics, Mathematics, Mechanics and Quantum Mechanics, the ECP offers also human and social science courses. A TIME student will study in total between 5 and 6 years and will be rewarded with a Master's level Double Degree from two different institutions. During the education at 2 universities, he will receive a bilingual and diverse in-depth education in engineering, which gives wide-range knowledge to meet the requirements for leading-positions in various fields around the world.

In comparison to other exchange programmes, the TIME programme is designed on a long-term basis (2 years studies abroad). The distinctive features and advantages of the TIME programme were summarized by Simon DAVIES (École Centrale de Lille) [3]:

- **"Adaptability"**: students who participate in this programme, can be seen as flexible and open-minded in their approach. They have spent a considerable amount of time in a different country - from their own - and have thus integrated new working practices and approaches to problems;
- **"Cosmopolitan"**: about one third of the students who participate in the TIME programmes, returns to their home country; about one third remains in their host country, and the remaining third moves elsewhere. This latter third is slowly increasing;
- **"Linguistic competence"**: a TIME exchange can almost be seen as a free language course. Such a programme allows the acquisition of a new language skill (which is not necessarily English) which would normally require expensive language courses;
- **"Set apart"**: TIME students can be set apart from the norm; for a potential employer they have qualities that set them apart from other candidates of a similar level of qualification.

Particularities:

- Language of instruction is generally the same language for everybody. In the beginning the courses can be in English (especially in smaller countries with languages not often spoken outside that state). But learning the language should be seen as an asset.
- Student has to stay at least 1.5 years abroad, normal duration would be 2 years.
- 360 ECTS credits are needed to earn the TIME double degree (60 ECTS = 1 year prolongation).

One of the advantages of TIME for the universities is that the University doesn't lose his students. The student should come back after his stay in the partner institution and perhaps stay for a PhD.

There are some other models in this direction. In March 2001, the Technical University of Civil Engineering Bucharest concluded with École Nationale des Ponts et Chaussées, Paris, a **Double-Diploma** agreement. Each partner university recognises and gives credit for all or part of studies done in the other university. Students who successfully complete the double-degree programme and satisfy all requirements set by the home and partner institution are simultaneously awarded a degree in the home university as well as the equivalent degree in the partner institution. An international student admitted to a double-degree programme in France spends at least two years of study there at the French partner institution. In the École des Ponts curriculum, the last two years of study are equivalent to a Master's Degree. International students in the double-degree programme complete this two-year Master's Degree. As a general rule, international students coming from universities where the engineering degree is awarded after five years of study are admitted at ENPC at the level Bac+4. However, if the home institutions offers a first degree programme of 4-year duration, as is the case nowadays with the Technical University of Civil Engineering Bucharest, the student will be admitted at ENPC at the level of Bac+4 only after graduating the first degree programme and after being admitted for the second degree programme at the home institution. Then, completing two years of study he/she receives the diploma of ENPC (equivalent to a MSc diploma) and returns for one semester at TUCEB to complete there the Master programme. To get, thus, three diplomas (first degree diploma in Bucharest, Engineering Diploma at ENPC and Master diploma at TUCEB), student has to study one more year as compared to the student who is not participating in the Double Diploma scheme .

Since 2002, the *École Centrale de Lille (EC Lille)*, in France and the *Faculté Polytechnique de Mons (FPMs)*, in Belgium, have a program of dual diplomas where the students of engineering at *EC Lille* and the students of architectural engineering at *FPMs* receive the diploma of engineer of *EC Lille* and the diploma of architect engineer of *FPMs* after having completed the respective course work of their school of origin and a program of studies in the other school. The program results have more than exceeded the founders expectations. It is interesting to mention that, beginning with 2005, the program has received some modifications, mainly in function of students feedback. The curriculum structure of each field had to undergo some modifications as a result of the program's learning accumulations: the civil engineering course had to become more humanistic and systemic while that of architect/urban planning had to become more technological and attentive to the aspects of the economy. The objective is to produce graduates from the two schools who will become

more and more involved as agents of technological, economical, political and socio-environmental change.

Another example of cooperation is **CLUSTER (Consortium Linking Universities of Science and Technology for Education and Research)**, a network of leading European Universities of Technology, founded in 1990, which may be considered as a multi-location European University for Science and Technology. **CLUSTER** is fully committed to the development of the European higher education area. Rectors of **CLUSTER** have signed the "Convention on mutual recognition of titles" stating that students from other **CLUSTER** institutions will be admitted like local students to master and PhD programmes. This enables vertical mobility for students of all member universities and creates transparency between the engineering programmes. MSc is a prime goal in education for **CLUSTER** universities. To further strengthen the European dimension at the MSc level, **CLUSTER** is engaged in developing Dual Degree Programmes. Students enrolled in a MSc programme at a **CLUSTER** university will have the opportunity to study the second year at another **CLUSTER** university. They will receive two degrees or a joint degree and be awarded a **CLUSTER** MSc diploma signed by the representatives of each university. **CLUSTER** is enabling the professional development of the administrative staff, researchers and teachers through mobility programmes and **CLUSTER** chairs. Cooperation at the Grants Office level is adding another dimension to the integration of **CLUSTER** universities. Engineering education and research must respond to the challenge of globalization. The engineer of the future will operate in an entirely new context. In response to a changing world, **CLUSTER** is engaged in the development of joint programmes with its associate members outside Europe. At the moment, four institutions contribute to the global set of activities of **CLUSTER**: Tomsk Polytechnic University, Tsinghua University Beijing, Georgia Tech in Atlanta and École Polytechnique de Montreal. The role of **CLUSTER**, initially envisioned as a facilitator to student and faculty mobility, is changing character to become *a network of excellence*, providing a platform for joint cooperation at all levels. The development of Europe towards a knowledge society, as emphasized in the Lisbon agenda, requires centers of excellence in education, research and innovation. One of the principal advantages for the **CLUSTER** students is the fact that they have the opportunity to choose among Master and PhD programmes in 11 universities. The university network **CLUSTER** has the potential to become an important part of the Lisbon strategy and beyond and challenged itself to play a leading role in education, research and innovation at the European level [4].

5 A CASE STUDY: THE MODEL TUM / UPT

In 1991 at the Faculty for Civil Engineering of the “POLITEHNICA” University of Timisoara, it was decided to open a section for a civil engineering 5-year programme taught in German. The reasons behind the decision were:

- Timisoara, the main cultural and industrial centre in western Romania, has always been influenced by the German science and technology;
- the German language is commonly spoken in the area.

This German branch, which was open in the academic year 1991 – 1992, is functioning in parallel with the Romanian one. The number of students is 35 – 50 students in one year, in total there are about 140 students.

In 1993, a cooperation agreement was signed with the Technical University from Munich, Germany. It includes a paragraph stating the contribution of the Technical University from Munich in the consolidation of the German branch in Timisoara. The first 11 civil engineers graduated the German branch in 1996.

Regular exchanges with universities from the German speaking countries took place.

In 2009, the 13th promotion of engineers has sustained the diploma examination. The graduates are very well received by the German companies working in Romania. More than 90 % of them are working in Romania. A high proficiency of the German language and the knowledge in Civil Engineering lead to the direct access to advanced technology, making possible the transfer of technical information to our country.

In 2005, after more than ten years of cooperation, the President of the Technical University of Munich – Prof. Dr. h. c. Wolfgang Herrmann - and the Rector of the University “Politehnica Timișoara – Prof. Dr. Ing. Nicolae Robu – signed, in the context of the internationalization strategy of both universities, an addendum to the existing agreement, concerning the double diploma offered to the students of both universities.

The present system at the “Politehnica” University Timisoara, for the first two cycles, is the following:

- Bachelor - 4 years (8 semesters)
- Master - 2 years (4 semesters).

At T.U. Munich, the two cycles are:

- Bachelor - 3 years (6 semesters)
- Master - 2 years (4 semesters).

Considering this situation, the following schedule was adopted:

- 1,5 years (3 Semesters) – Timișoara
- 1,5 years (3 Semesters) – Munich
→ Bachelor TU Munich
- 1 year (2 Semesters) – Timișoara
→ Bachelor UP Timișoara

The possibilities for the Master degree are open; the title can be acquired in Timisoara or in Munich.

The double diploma programme is accessible only for the best students. In March 2007 the first four students from Timisoara began their studies in Munich after three semesters in Timisoara, enjoying the generous support of the Bayerische Bauindustrie which offered scholarships to the students.

Some difficulties were encountered, like the adaptation of the Romanian students to another system, problems in the schedule (there are two months difference between the academic year in Timisoara and in Munich), the recognition by some professors of some exams at the home university and at the host university (different curricula). The language was not a problem.

Two diplomas are delivered: a bachelor degree from the Technical University in Munich (3 years) and a bachelora (engineering) degree from the University “POLITEHNICA” in Timisoara (4 years). This gives the graduates a nationally recognized diploma in both countries. The success of this concept is acknowledged by the industry. Important companies are favourable impressed and show interest in recruiting engineers with dual qualification. An extension of this program with other Universities, like Technical Universities from Vienna and Graz, is under study. It was largely “*learning by doing*” and it goes easier and easier every time.

The program is accessible, in a first step, only for the best students (elite). Nevertheless, the double diploma programme is becoming very popular among students. Also it is important to mention that practical placements at different companies in Bavaria is assured.

In the near future, due to large perspectives offered by the construction market in Romania, it is possible that also students from Germany would be interested in this program.

6. WORKING GROUP B – QUESTIONNAIRE

The problem of a joint degree – double diploma was tackled successively in the EUCEET meetings and raised many discussions “pro and contra”. In order to have an overview about the different existing opinions, a questionnaire was distributed to the EUCEET partners, structured as follows:

1. Do you have an English Civil Engineering branch in your University?
2. Do you agree to enter in a joint degree (pilot) network in Civil Engineering?
3. Which system do you have
 - Bachelor with 180 ECTS
 - Bachelor with 240 ECTS
4. Do you agree the number of max. 10 % of students proposed for the double diploma ?
5. Do you agree to the elaboration in the frame of EUCEET of rules and guidelines for the joint degree network?
6. Do you agree the above proposed scheme for a joint degree? Observations?
7. Do you agree on the following conditions:
 - 7.1 Jointly developed programmes
 - 7.1 Cooperation in admission and examination of students
 - 7.2 Staff and teacher mobility
8. Do you agree to sign an agreement confirming the educational goals and content of the programme, providing different organization details?
9. If you enter in the double (joint) degree programme do you agree with the following proposals:
 - 9.1 elaboration of a dedicated handbook and website
 - 9.2 nomination of a coordinator giving information and support, developing initiatives, organizing meetings and events
 - 9.3 communication organized via the website
 - 9.4 solutions for scholarships and awards for double degrees students.
10. Which other observations do you have concerning the joint degree?

The results are presented in the table below.

| | Question | Cz TU Prague | Univ. Zilina | BUTE | Bialystok T.U. | Istanbul Univ. | Delft U.T. | ENPC |
|-----|-------------------------------------|---------------------|--------------|---------------------|------------------------|------------------------|---------------------------|------|
| 1 | Civil eng. Branch | Yes | Yes | Yes | Possible | No | Yes MSc | No |
| 2 | Agree | Prefer D.D. for MSc | Yes | Yes | Yes | Yes (language barrier) | No | Yes |
| 3 | ECTS | 240 | 180 240 | 240 | 210 | 180 240 | 180 | |
| 4 | 10% students | <10% | Yes | Yes | Yes | Yes | ? | Yes |
| 5 | Rules % guidelines | Yes also D.D. | Yes | Yes | Yes | Yes | Models-yes Rules-no | |
| 6 | Scheme 4 -> 3 ... | Yes | Yes | Yes | Host shorter than home | Yes | No for bachelor | |
| 7.1 | Jointly progr. | D.D. | Yes | Yes | Yes | Yes | Yes | |
| 7.2 | Coop. adm. stud. | Yes | Yes | Yes | Yes | Specific in Turkey | Yes | |
| 7.3 | Staff & teacher mobility | Yes | Yes | Yes | Yes | Yes | Yes | |
| 8 | Agreement | Yes | Yes | Yes | Yes | Complicated procedure | Only with indiv. partners | |
| 9.1 | Handbook & web | Yes | Yes | Yes | Yes | To be discussed | No | |
| 9.2 | Coordinator | Yes | Yes | Yes | Yes | | No | |
| 9.3 | Communication web | Yes | Yes | Yes | Yes | To be discussed | No | |
| 9.4 | Scholarship | Yes | Yes | Yes | Yes | To be discussed | No | |
| 10 | Observations | Prefer D.D. for MSc | - | Prefer D.D. for MSc | Educat. Differ. Compar | - | Only in MSc | |

As it can be seen, the general opinion is for this concept, even if many participants have this option only for the level of “Master”. Meanwhile, other Universities (like the University of Architecture, Civil Engineers and Geodesy from Sofia, the University from Pecs etc.) had shown their interest in the idea!

7. WORKING GROUP B – PROPOSALS

In order to qualify for a diploma from the host University, students must satisfy all the graduation requirements of this institution. This implies the recognition of a part of the studies they have completed in their home University. Other general conditions, problems and recommendations are:

- Financial problems; University budgets are tight. Scholarships and personal efforts are important.
- Despite different educational systems, a common curricula is very helpful.
- Exchange semesters; usually half of the studies must be completed to the partner University.
- Application documents; each institution will provide documents for its partner. These documents will be based on the European Credit Transfer System:
 - application form for the student
 - learning agreement
 - transcript of record.
- Teaching language; both institutions may offer a study program in an international language, for example English, but it can be also French, German etc.
- Tuition fees and insurance; students participating in an exchange program continue to pay these fees – if they exist - at their home University. It is recommendable that no fees are paid to the host University. An insurance paper covering individual responsibility and medical insurance for the visiting student is necessary.
- Throughout the study period in the host establishment, the visiting student is subjected to administrative and academic regulations of the host institution.
- Validation of studies; the host University will send to the home institution details of the grades obtained by the exchange students and will indicate if the student has satisfactorily completed all the study semesters required. Students who validate all their study semesters in the host institution obtain the double diploma.
- Finally a student who fulfils all the conditions for the double diploma will receive a diploma from each of the two Universities.
- Harmonization of the scheduling problems; in many universities the beginning of the academic year is different.
- Regular communication between the Universities and with the exchange students.

Without additional funding for a coordinator or program assistant, it will be difficult to meet the additional workload that joint or double degree programs usually generate. Personal efforts and engagement is often the starting point of a

joint or double degree program, but without institutional support at all levels, most such initiatives will be short lived.

A very important problem is the candidates selection. The recommendation is to select only good students ready to make additional efforts. Adequate language knowledge is compulsory.

Proposal: Taking the model of the TIME, we propose a similar **network in the field of Civil Engineering in the frame of EUCEET**. The graduate of this network will study in total between 4 and 6 years and will be rewarded with a Double Degree from two different countries. In a first step we propose this network at the Bachelor level; it can be extended also to the Master level.

In what follows, one can find a scheme with the diverse possibilities for a double degree, taking into account the different systems for the first cycle degree (three or four years):

Double (Joint) degree scheme for bachelor:

A. Between the Universities which have the system of 4 years – bachelor (240 ECTS)

- Two years (120 ECTS) at the home University
 - Two years (120 ECTS) at the host University
- When the student has passed all the exams (decided together with an Academic Advisor), the final project will be presented to an official Committee, recognised in both Universities at the same time.**

B. Between the Universities which have the system of 3 years – bachelor (180 ECTS)

- 1,5 years (90 ECTS) at the home University
 - 1,5 years (90 ECTS) at the host University
- When the student has passed all the exams (decided together with an Academic Advisor), the final project will be presented to an official Committee, recognised in both Universities at the same time.**

C. Between the one University of 3 years and another of 4 years

C1. From 4 years (home University) to 3 years (host University)

- 1,5 years (90 ECTS) at the home University
 - 1,5 years (90 ECTS) at the host University
- Diploma examination – bachelor degree with 180 ECTS (host University)**

- 1,0 years (60 ECTS) at the home University

Diploma is recognized – bachelor degree with 240 ECTS (home University)

C2. From 3 years (home University) to 4 years (host University)

- 1 year (60 ECTS) at the home University
- 1 year (60 ECTS) at the host University
- 1 year (60 ECTS) at the home University

Diploma examination – bachelor degree with 180 ECTS (home University)

- 1,0 years (60 ECTS) at the host University

Diploma is recognized – bachelor degree with 240 ECTS (host University)

D. Between the Universities which maintained integrated – 5 year - programmes. A specific rule, based on the experience of Double Diploma agreements concluded by Ecole Nationale des Ponts et Chaussées will be established.

One of the most important conditions for entering in the network is the existence of a teaching branch in a European language. In Romania in Civil Engineering in English is taught – parallel to the education in Romanian - in Bucharest, Iasi and Timisoara. A short presentation of the Civil Engineering - English Teaching Branch from Timisoara is presented below:

THE “POLITEHNICA” UNIVERSITY OF TIMISOARA - ROMANIA

Civil Engineering Faculty

Civil Engineering: English Teaching Branch (founded 1991)

Duration of study & graduates:

- **Duration of study (until 2009) = 5 years**
- **Duration of study (from 2009) = 4 years**
- **Optional: Master course in English with a duration of 2 years (4 semesters)**
- **Number of graduation series = 14**
- **First graduation(5 years system) = 1996**
- **First graduation (4 years system) = 2009**
- **Average number of graduates = 15/year**
- **Total number of graduates = cca. 210**

The network can be created step by step on the base of bilateral agreements. An informative model is presented in the Annex I.

8. CONCLUSIONS

An evaluation of the current situation of joint and double degree programs and the identification of challenges and opportunities with the aim to expand existing programs or to develop new ones in the frame of the EUCEET Association, was performed.

In European countries the introduction of joint and double degree programs has been a part of internationalization strategies in higher education, helping to create stronger links and enlarging institutional partnerships, as well as preparing students for a global workplace. In an increasingly global and competitive higher education market, collaborative programmes of this kind, can offer a set of advantages and are an important asset in the competition for attracting the best students.

Finally, some general aspects can be pointed out:

- The key motivations for launching joint and double degree programs are internationalization strategies in higher education and acquiring international visibility and prestige of the university,
- Some EU universities launched their first joint and double degree programs prior to 1996;
- Due to legal issues, double degrees programs appear to be more common than joint degrees;
- Each and every collaborative degree program is unique;
- European institutions are more inclined to offer joint and double degrees at the master level;
- English is by far the most commonly used language of instruction, followed by French, Spanish, German and Italian;
- Adequate financial support and sustainability of the program are important;
- A large number of EU institutions plan to develop in the future more joint and double degrees;
- A clear legal framework upon which to build these programs - including accreditation guidelines – is in the near future also necessary.

Partner institutions can be selected on the basis of existing institutional links developed within EUCEET.

Students who participate in these exchanges benefit from a widening of their knowledge. A double diploma in civil engineering, can be obtained in most cases without additional study periods.

REFERENCES

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2. Matthias Kuder, Freie Universität Berlin, Daniel Obst, Institute of International Education „**Joint and Double Degree Programs in the Transatlantic Context: a Survey Report**” Project funded by the EU-U.S. Atlantis Program of the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) and the European Commission's Directorate General for Education and Culture, January 2009, www.iienetwork.org/file_depot
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5. Smieja, Tomasz, Rudion, Krzysztof, et al: “Diploma Project: a new higher education concept in a United Europe, The International Journal of Electrical Engineering Education, Apr 2007”

Annex I**COOPERATION AGREEMENT**

between

xy,with its legal domicile at **xy**represented by its **xy**

and

**The Faculty of Civil Engineering, Universitatea “POLITEHNICA” from
Timișoara****with its legal domicile at P-ta Victoriei 1, Timisoara,
represented by its Rector, Prof. Dr. Ing. Nicolae ROBU**

Both parties, members of the EUCEET (*European Civil Engineering Education and Training*) Association, have reached the following agreement:

Article 1: Objectives

The present contract provides the framework for common action to be taken between the above - mentioned partners. The aim is to promote the exchange of:

- persons,
- experience and projects in the area of higher education and research, especially for the graduate double degree (double diploma) programme.

Article 2: Nature of the Exchange

The contract shall promote

- the exchange of students, professors and researchers,
- the exchange of information and scientific publications,
- the exchange of students for visits to and internships in companies,
- meeting for study purposes as well as joint seminars on previously agreed upon topics.

The exchange of persons shall comply with the regulations and procedures in force at both institutions.

No study fees will be charged by the receiving university.

Article 3: Education

The EUCEET Graduate Double Degree Programme

The two parties to the contract shall agree to promote the exchange of students for the attainment of a graduate double degree in accordance with the policy of the EUCEET Association and regulated by special agreements set out in addenda.

Both parties shall endeavor to provide financial support for the student exchange programme and help with finding accommodation.

Both parties shall be responsible for making certain that their students are fully informed of the possibilities for exchange. To this end, the parties shall agree to exchange the required documents in order to inform their students about the study programmes at the partner institution.

The EUCEET Master Joint Degree Programme

Both parties shall moreover promote the establishment of EUCEET Master joint degree programmes in accordance with the regulations of the EUCEET Association and cooperate in marketing these programmes abroad.

Article 4: Research

Both parties shall endeavor to promote research cooperation by encouraging exchange and discussion of scientific methods and potential joint research applications. The exchange of doctoral candidates will also be encouraged.

Article 5: Organisation and Procedure

Each party shall appoint a representative responsible for realizing the objectives indicated in this agreement.

Each party shall provide advice to the other party whenever it is deemed necessary. Both parties will meet at least once a year to discuss further developments and take stock of achievements.

Article 6: Duration

The present contract shall come into force when it is signed by both contracting parties.

It will remain valid for five years and can be renewed after verification of the activities developed during its duration and provided that the two parties agree on renewal.

The present contract may be modified by either party in agreement with the other party.

The present agreement may be cancelled by either of the two parties with six months' notice. In this case, the contract shall continue to be valid for any professors and students who may still be participating in the programme.

The parties agree to solve in a friendly manner any controversy arising from the interpretation of the present agreement. If agreement cannot be reached, the claim will be submitted for arbitration. Each party will appoint a member for an arbitration panel, and one member will be chosen by mutual consent.

Article 7: Obligations

No financial obligations for either party shall arise out of this agreement.

Article 8: Addenda

Special agreements may be defined in addenda.

The present agreement shall be prepared in x copies, all of which shall have equal validity.

XXX, on XXX
for

Timisoara, on XXX
for Universitatea « POLITEHNICA » Timisoara

Rector

Rector

Prof. Dr. Ing. Nicolae ROBU