Transparency of Academic Qualifications as a Gateway for Professionals' Free Movement in Europe
- Proceedings of the Workshop -

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PREFACE

The **overall objective** of the action is *to create a forum for debate gathering representatives from all the involved target groups, geographical areas and institutional backgrounds on the topic* **Transparency of Academic Qualifications as a Gateway for Professionals' Free Movement in Europe.** We consider it a must of the moment, in the context of the institutional changes that take place and are expected to take place in Europe, giving the opportunity and suitable framework for well-grounded discussions and debates on the above-mentioned topic. It is obvious that the limitation to the formal provisions of the relevant regulations in the field is not efficient. It is important to analyze the way in which they are put into practice and the particular aspects that characterize the process of ensuring mutual recognition of academic qualifications in Central and Eastern European countries, as well as the potential difficulties and inconveniences that decision makers in different European countries have been facing in the process of implementing this chapter in the acquis.

The **specific objectives** of the project are designed in accordance with the broad institutional and geographical areas

that it covers as well as with the complexity and boldness of the overall objective:

1. To initiate/intensify communication between all the participants involved in the process. Most of them have already participated in common projects, but there are new parties that have to be actively involved in the action. In this respect, it is vital to consolidate two categories of interfaces:
- the one between decisions makers from Western European Universities, on the one hand and decision makers from Central and Eastern European Universities, on the other hand;
- the one between decision makers from the academic environment and the adjacent groups, namely students and employers across Europe.

2. To evaluate and quantify to the maximum extent possible, the progress that every involved country has made in ensuring the transparency of academic qualifications and the free movement of professionals across Europe; the specificity in the progress of this process by country and region; the difficulties, obstacles and potential ignorance vis-à-vis this process in certain countries/periods of time.
This evaluation is to be accomplished before the workshop takes place, so that the representatives of the target groups would be able to acquire a sort of barometer for the analysed process in their own institutions/countries.

3. To communicate, compare, analyze, and synthesize data on the status of ensuring transparency of academic qualifications, on the occasion of the workshop to take place in the academic year 2004-2005 in Craiova, Romania. This is a good opportunity for presenting the results of the acquired "barometers" and to identify the best lines of action in order to make the process

work, according to the Lisbon Convention and other regulatory provisions in the field. Participants from both Western and Central & Eastern European countries will have to opportunity to tackle various issues regarding this process and to elaborate future strategies. What must be done; what has been done; what needs to be done in future; how to synergize efforts between countries and between institutions – these are some of the questions that the action aims at finding an answer to.

4. To create pathways for communication between participants in future, after the funding from the European Commission ceases. Free movement of professionals in Europe and the demarches that need to be done in this respect are not disparate actions that can be solved by snapping one's fingers. They require permanent interest and preoccupation from the involved parties and consistent efforts in time. The workshop will raise the public opinion's interest and will serve as an alarm signal on the above mentioned issues. Thus, it can be considered as a starting point for future initiatives in the field that can materialize in real progress for ensuring the free movement of professionals in Europe.

I. EDUCATIONAL SYSTEM OF ROMANIA THE MAIN LINES OF CONCERN

Education represents a key element to providing human development and promotion of an inclusive society.
The Romanian school system is relatively well coagulated institutionally, organized on modern bases, but it has been severely affected during the transition period, on the one hand by the maintenance of a chronic sub financing forms, and on the other hand by the shock transmitted by the disorganization processes which have affected the entire Romanian society. Moreover, it faces the challenge of adaptation to a society in rapid change. At the confluence between a society under the stress of multiple crises and a school which hardly finds the resources of answer to multiple challenges, there has been an erosion of the school participation significance, characteristic to the poor segments of society. In its turn, this is an important factor of poverty perpetuation and of social exclusion.

1. Key problems of the school system from the perspective of poverty prevention and of social exclusion

A high number of children are not at all comprised in the education system. These are children without ID (especially those from Roma communities), children living in socially

disorganized families and confronted with extreme poverty, or children with handicap.

Not finishing the obligatory school cycle, because of abandon and/or school failure. Extreme poverty and social disorganization, as main sources of abandon and failure, are amplified by the internal deficiencies of the school process.

The degradation of the obligatory educational system performance.

A gap, which is far from being absorbed, between the training offered by school and the requests of the Romanian society in rapid change. If the university system has adapted more quickly to the new needs of the labour market, the secondary education system, especially the vocational one, has not yet managed to offer an adequate response to the requests of the labour market which is itself under a huge stress generated by the economic crash. The school has not yet managed to offer the training necessary to a socially active participation, to avoid the appointment in the poverty cycle or in the social exclusion, to make up effective confrontations to face the new challenges: the increase of violence and delinquency, the drug consumption.

A crisis of pre-university professional training, as a reflection of the decrease of demand on the labour market of people with medium qualification. The current economic crisis has not stimulated the professional training at medium levels, this deficit of school-professional training will adversely affect the economic relaunch. The nonparticipation to the obligatory post education is maintained at a rather high level. The proportion of young people who do not manage to place themselves around 15-16% of one generation.

The accentuation of educational polarization which will become one of the most important future polarization factors. If on the one hand, the participation to superior education has

rapidly increased (approximately 25% of one generation attends university courses nowadays), the proportion of young people who withdraw from the school process before obtaining a final educational professional training has increased. The risk of young generation fragmentation in two segments is being forecasted: those who attend university studies and those do not even get to high school or to a vocational school.

The accentuation of the inequality of school participation opportunities. The accentuation of social-economic polarization has inevitably deepened the inequality of educational chances. A supplementary source in the increase of inequality of chances is represented by the deepening of the rural/urban gap.

The school in the urban environment is especially confronted with severe problems: the precarious state of buildings, the rudimentary endowment with didactic material, the lack of didactic qualified employees in most rural areas, long distances to school, difficulties to participate to secondary education forms, predominantly established in towns, in the absence of sufficient residential facilities.

Deficit in the interaction between the school and the community. On the one hand, the school has reduced its capacity to influence the family and the community, in order to develop a supportive attitude towards school participation, and on the other hand, the community still sustains school in a rather inefficient manner.

2. Vulnerable groups

The main groups of school risk are:

- The Roms population, because of the accumulation of adverse conditions such as severe poverty and the

persistence of traditional strategies to confront difficulties which lead to the unsustainability of school participation

- The families which face extreme poverty, and lack housing and elementary life conditions
- Families from poor areas characterized by important social disorganization/degradation processes
- Isolated poor rural areas with a low access to qualitative education, with a difficult access to secondary education
- Children with handicap: school unsubscription (rare cases), delays in subscription (cases of subscription after the age of 9 or ten), insufficient school education compared to their own possibilities.

3. Providing quasi-total subscription of the 7/8 year-old children in the school system

- Identification of all 7/8-year old children with risk of not being subscribed to school and ensuring their subscription, as well as that of children who have surpassed the subscription period.
- A rapid solving of the cases of lack of children ID.

4. The decrease of school abandon in the obligatory cycle towards zero in the next five years

- The sustenance of the program free handbooks and school supplies for poor families.
- Providing transport to areas with long distances home/school and where there are not qualified didactic specialists.
- The exploration of possibilities to offer secondary social and educational services for children with high

risk of abandon/failure: free meal, supplementary support for school preparation.

- The increase of efficiency in granting scholarships
- The activation of the relation school/community.
- The increase of implication of the teachers in the relation with the parents and the community.
- The appointment in schools from social milieus with high risk of social assistants.
- The development of the relation school/local public authorities.
- The increase of implication of communitarian social assistance services in the sustenance of school participation.
- The improvement of the educational content in order to render it more relevant for the children.
- The increase in the percentage and the quality of disciplines applied to the economic opportunities of the area and to modern life.
- Formation for the social life sectors which have become highly relevant: computers with their main applications, foreign languages.
- The accentuation of children preparation for their functioning in an inclusive society.
- The rapid modernization of learning methods.
- A special program for the increase of attractiveness of school activities.
- The increase of the school 'democratization' degree.
- The increase of the chances of participation to obligatory post-university forms for children from disfavored environments, as a means to increase the school participation motivation.

5. Relaunch of the post-obligatory education, with a special focus on the concept of technical and vocational education

- Reconsideration of the philosophy of the capacity exam: it must not become a barrier for the continuation of education and no form of accentuation of differences of opportunities, but an ending of the obligatory school cycle which opens the possibility of subscription to secondary and superior education forms, inclusively for continuous and open education.
- The elaboration of a strategy of technical and vocational education, with a special focus on the support for the preparation for agricultural professions
- The increase of the percentage of vocational education in the post-obligatory education.
- The development of some important components of the curriculum in partnership with the local communities. This must be practiced in the primary education system, as well as in the high school, technical and vocational education system.
- The increase of relevance for the social functioning of post-obligatory education: capacities for active social participation, promotion of the values of an inclusive society, for the prevention of modern society risks: violence, alienation, delinquency, drug consumption.
- The development of capacities necessary for an economy based on knowledge The increase of chances of access to secondary education for children from disfavored areas (rural environment, Roma population, poor segments, persons with handicap).
- A specially oriented policy of social scholarships.

- Residences for children from remote geographical areas, but also for those who come from families confronted with the lack of elementary life conditions.

6. In a ten-year period we will need to get closer to the situation in which all young people will have finished the obligatory school cycle with a professional specialization

7. Rehabilitation of the rural school system

- Rehabilitation of buildings
- Modernization of educational conditions
- Providing a qualified and motivated teaching staff
- Providing transport for children who live at long distances from school

8. Providing access to continuous formation

- The development of programs for the correction of the young generation deficit in enrollment (especially the generation between 16 and 30 years old) generated by the transition crisis
- Continuous programs for the correction of the education deficit generated by the normal functioning of the education system

9. The increase of the school function of educational and professional orientation

The efficient educational and professional orientation has a key role in the stimulation of learning motivation and in the formation of stimulative school routes. Thus, it is strong antidote against educational polarization.

10. The promotion of the equality of educational chances as an instrument for decreasing social polarizations

- The increase of chances of access to education for children from socially disfavored areas.
- The development of an open education system, with educational chances through all life.
- Support for the access to secondary education of children who come from disfavored environments: gratuities to course books and school supplies, social scholarships, boarding schools for children from other localities.

11. The generalization of participation to the preparation year for the preschool education system

12. The promotion of inclusive education for children with handicap

13. The increase of the school capacity to promote social inclusion

- The presence in the curriculum of elements of formation for an inclusive society
- The organization in school of programs of activities specially oriented towards the formation of social inclusion capacities.

14. The increase of the personal and professional significance of school

- Improvement of the school content and of the teaching techniques so that the attractiveness of learning increase
- The increase of the school implication in spare time activities
- The increase of the parents' implication in the school management and in school support activities.

As a general conclusion, the main concern of the Romanian Government do not focus on the higher education system. In our opinion this should be regarded as an important favourable indicator: the higher education functions at acceptable standards.

II. EDUCATIONAL SYSTEM OF ROMANIA HIGHER EDUCATION SYSTEM ASPECTS[1]

1. Dynamics of the higher education system

After the fall of the totalitarian regime, Romania entered a complex transition to market economy and democracy. This process affected every domains from society to economy, culture and politics. Reform in the field of higher

[1] This chapter represents the official position of the Ministry of Education and Research

education began right after 1989 and aimed initially at eliminating courses that had become obsolete in view of the new option and, during a second more extensive phase, building a coherent legal frame that could ensure a more effective higher education.

The Constitution of Romania, adopted in 1991, is the foundation of the entire legislation in the field. It is currently under debate by Parliament in order to make it better adapted to the new evolutions at national, European and world level. The specific legislation, regulating higher education in Romania is represented by three organic laws: the Law on Education (Law 84/1995), with its further modifications and supplements, the Statute of teaching staff (Law 28/1997), with its further modifications and supplements, as well as the Law of accreditation of higher education institutions and recognition of diplomas (Law 88/1993), with its further modifications and supplements. There is also the Law no. 60/2002 on the right of private higher education graduates to hold their graduation examinations at accredited state-owned higher education istitutions, the Law no. 62/2002 for the approval of the Government Ordinance no. 60/1998 on the creation of Romanian university extensions abroad, the Law for Creating Academic Consortia (2003), the Law for Private Grants, the project of Law for Quality Assurance in Education (2004, 2005), the Emergency Ordinances, Ordinances and Decisions of the Government of Romania, orders of the minister of education, research and youth.

Pursuant to these legal documents, the activity of higher education has become more and more coherent, based upon the progressive increase of university autonomy and accountability, decentralization of activities, and support to research and technological innovation.

Recent changes that have occurred in the Romanian and European higher education system are grounded on the options of continental countries, expressed in the Bologna Declaration, to achieve a unique European space in this field by the year 2010. The implementation of these recommendations generated two ideas: one obvious up to the year 2000, which meant a sudden change and an immediate application of these recommendations and another starting in the year 2001, when *it was decided to carry on a process based primarily on the participation of universities*. The creation of a pro-Bologna attitude at the level of education institutions, through the organization of debates, workshops, the inclusion of universities in an experimental network, *that began within the MATRA programme, financed by the Dutch Government*, followed by the dissemination of the results obtained.

Today, as a result of this strategy, resistance to such changes is quite moderate, the environment for a direct implementation of measures capable of consciously adapting the system to the mutations taking place at European level has already been created. Moreover, all actions carried on from 1999 to the present date aimed at the creation of a pro-quality culture and behaviour, in the spirit of the Bologna Declaration and of later documents, adopted at the level of the continent.

In a synthetic overview, the main changes that have occurred in the higher education system are the following:

- *Definition of long-term and short-term programmes,* at the same time, a clear distinction was made between Universities and University Colleges, the latter having an independent functioning or, most of the time, being integrated to universities;
- *Making study programmes more flexible,* by offering optional elective paths, and by gradually increasing the individual time of study;

- *Setting national standards* for temporary authorization and institutional accreditation
- *Internal and external evaluation of study programmes* in view of temporary authorization and accreditation by the National Council for Academic Evaluation and Accreditation (created in 1993 and subordinated to the Parliament of Romania), as well as periodical evaluation;
- *Introduction of the transferable credit system,* evaluating students' participation in education activities and encouraging their mobility;
- *Switch to global financing* using the number of students as a main indicator; the introduction of complex quality indicators leading to a ranking of universities according to their performance, encouraging through financing the most dynamic and effective higher education institutions;
- *The possibility for public universities to enroll students with tuition fees,* public universities have an enrolment quota supported by budget and approved every year by the Ministry of Education, Research and Youth (MECT);
- *Diversification of the scholarship system,* supporting students with social problems but also eminent students;

A draft for a **first Law on higher education** was elaborated in 2002 and presented to universities for debate. Changes that have occurred globally in the education system have been strongly influenced by the increasing number of public and private higher education institutions. In 2000-2001, there were 133 civil universities and 8 military institution in the higher education institutions network in Romania, compared to the 30 higher education institutions existing in 1989. Out of the 133 civil higher education institutions, 49 (not counting military institutions) belong to public higher education, while the other 84 are private.

Private higher education institutions have generally a humanistic structure, with specializations mainly in the economic, legal, philological and theological fields.
Through laws of individual creation, 20 private universities have been institutionally accredited in the years 2002 and 2003, in all the regions of the country, but mainly in Bucharest (9).
The network of private higher education institutions has been strongly restructured after the liquidation of 33 such institutions, due to the violation of quality standards of the education process, as well as to the defective mode of organization and organization of study programmes.
As a result, the higher education network has today 100 civil institutions and 8 military institutions.
In Romania, there is long-term and short-term higher education and this structure can be
found in most fields (Table 2).
The existence of the two distinct forms of education is an **extremely favourable premise for the implementation of cycles stipulated in the Bologna Declaration.** Short-term education, present in all the fields of university education, and which is destined to train graduates with a great capacity of insertion on the labour market, can easily be transformed into a first cycle, granting the graduates the title of Bachelor. Furthermore, this form is open, graduates from short-term education can carry on their studies in the long-term form after passing the examinations for the make-up programmes and the recognition of the credits obtained.
In both forms of higher education, entrance is made either through an entrance contest consisting of two examinations, to which the average from the baccalaureate can be added with a variable weight, or *based upon results from the pre-university education.* The methodology of admission is set by each university, according to university autonomy, on the basis of

general criteria elaborated by the Ministry of Education, Research and Youth. Only secondary-school graduates with a baccalaureate diploma may contest admission.

The finalization of studies can be organized only by accredited higher education institutions. The graduation, license or diploma examination consists of two examinations:

- evaluation of fundamental and specialization knowledge;
- presentation of the graduation paper, of the license paper or the diploma project.

The content of each examination is set by the organizing institution.

The main forms of postgraduate education are represented by master's, postgraduate academic studies, doctorate, postgraduate specialist courses, specific forms of postgraduate medical education. The policy of the Ministry of Education, Research and Youth in the field has aimed at reducing dramatically the accent put on DEA studies and an increase of the weight of master's, which has become the predominant form. At the same time, the focus on part-time doctorate has switched to a more significant enrolment quota for full-time doctoral studies.

Globally, the forms of postgraduate education existent so far in universities are:

- *Master's* aims at extending competence to several fields of long-term university fields of specialization. This type of postgraduate courses can be attended by graduates with diplomas from long-term university studies, irrespective of profile or specialization. Their duration is 3-4 semesters and they are finalized by a dissertation and granted a master's diploma.
- *Postgraduate academic studies* are carried on in postgraduate institutions of academic studies, organized

by independent institutions in Romania or abroad. Their purpose is to extent and improve the long-term university training. Postgraduate academic studies are finalized by a *Dissertation* and graduates receive a *Diploma of Postgraduate Academic Studies.*

- *Doctoral programmes* constitutes a higher education and research form carried on in higher education institutions that organize doctorate studies. It is organized by *Fields of Doctorate.*

The Doctorate is finalized by a *Doctorate thesis* and graduates receive the scientific title of *Doctor,* respectively, the *Doctor Diploma.* The doctorate is organized in higher education institutions and in scientific research institutions – according to the law – approved by the Ministry of Education, Research and Youth, upon proposal by the National Council for the Attestation of Academic Degrees, Diplomas and Certificates (C.N.A.T.D.C.U.), on the basis of the accreditation criteria regulated for this purpose, named *Institutions organizing Doctoral Studies (I.O.D.).* Each I.O.D. elaborates its own Regulations for the organization and carrying on of doctorate studies, according to the law, which are approved by the university Senate/I.O.D. Scientific Council. Tenure, associate or consulting professors or senior researchers of rank 1 with a doctor's degree may be *Directors of doctoral programmes*. The quality of *Director of doctoral programmes* is conferred by order of the Minister of Education and Research upon proposal by a I.O.D. and with the nominal approval by the C.N.A.T.D.C.U., based upon evaluation criteria elaborated to this effect.

Other types of postgraduate studies are specialist courses or further training courses, specific forms of postgraduate medical education finalized, as the case may be, by diplomas or graduation certificates.

2. The Bologna Declaration – the fundamental charter of change in Romanian higher education

Changes occurring today in Romanian higher education aim at the creation of a pro-Bologna university environment, as well as at the implementation with maximum efficiency of recommendations issued from the Declaration signed in 1999 by the ministers of education from the European countries. The agreed objectives for the creation of a European space for higher education are also the objectives of today's university restructuring and modernization.

Higher education structure by cycles

One of the main objectives is the structuring of higher education by cycles and its subsequent organization. Discussions that occurred within the National Council of Rectors, during various workshops have shown a general consensus regarding the switch to this structure, most probably starting with the academic year 2004/2005.

Thus, are individualized:

- the first cycle, amounting to 180-240 credit points, finalized by a title of Bachelor;
- the second cycle, amounting to 120-60 credit points, finalized by a title of Master;

Aside from the two cycles, we could note a third cycle, represented by doctoral studies and finalized by the granting of the title of doctor in science. All candidates for the title of doctor will be graduates of master's study programmes or its equivalent.

If it is almost unanimously considered that such a structure would not be beneficial for the medical field and for the field of architecture; in the case of engineering sciences, many of the

actors in the field support the adoption of integrated study programmes, with o duration of 5 years and finalized by the title of master, with a total of at least 300 credits.
At the level of higher education institutions there is debate with regard to the pertinence of the diploma obtained after the first cycle on the national and European labour market, and the possibility to introduce o professional master's or a one year professional specialization training in view of a rapid insertion on the labour field of the Bachelor degree holders.
In the field of arts, there is great difficulty for holders of a title of Master in Arts to follow a doctoral programme. Opinions are quite divided, since the reality of the facts has shown that such programmes resulting in a title of doctor are possible in some artistic fields but quite difficult in other fields, dealing with performance, choreography, etc.
For medical education, the first two integrated university cycles are followed by residency (with a maximum duration of 7 years), following which graduates obtain the attestation in view of carrying on the profession of medical doctor. Simultaneously or afterwards, these students may follow a doctoral programme finalized by the granting of the title of doctor in medical sciences, respectively, in dentistry.
The third cycle, the doctorate activity, finalized by the granting of the title of doctor in science, for which only master's graduates are eligible. Recently, a Government Decision concerning the organization of doctoral studies has been promoted, on new quality basis.

Status of the implementation of the Diploma Supplement
Romania has signed the Lisboa Convention, April 1997, on recognition of qualifications
obtained in the higher education and has ratified this document through Law no. 172/02.10.1998.

Section IX, art. IX.3 stipulates the promotion of the Administrative appendix to the diploma, namely the Diploma Supplement.
Having regard to the Lisboa Convention, the joint Declaration of the European ministers
of education in Bologna on July 19, 1999, the recommendations of the Council of Ministers of the EU from May 6, 1996, as well as those of the European Commission and UNESCO on transparency in view of academic and professional recognition, the Minister's Order (no.3659/20.04.2000) introduced, upon request, the administrative appendix to the diploma, the unique European model. Based upon this order, any graduate may require the emission of the Diploma Supplement and each accredited university has at its disposal the required form and instructions for filling the form.

The transferable credit system

The organization of the education process using the transferable credit system has begun during the 1998/1999 academic year. This mode of organization makes possible the use of an analytical evaluation system of the time and effort necessary to carry on activities composing the education process. Moreover, it has advantages both for the mode of organization and its management, and for its validation with the education process in other universities in Romania and abroad.
Granting the credit points attributed for one subject is conditioned by successfully passing this subject. The minimum passing grade is 5, on a scale from 1 to 10, and, once obtained, the student is granted the number of credit units attributed to the subject. Sucessfully passed subject are recognized in any

case. In the case *Master's* – the finalization is through a *Dissertation*, where the minimum passing grade is 6,00.
Starting with the academic year 1998/1999, universities offer distance education.
Students enrolled in this form of training have the same education plan as those from day courses. Exceptionally, for the students enrolled in the distance education system, the accumulation of the *120 credit points* corresponds to the first and second year of study and, respectively the third and fourth years of study and a minimum 6,00 grade average ; it can be achieved in three years, provided that a minimum *40 credit points* is obtained at the end of each academic year.
The maximum number of *transferable credit points in ECTS* is set by the Council of each
faculty. If a student follows study periods in other universities/faculties (domestic and/or abroad), according to the regulations set by each Teaching Board, the credits obtained will be recognized by the home faculty.
Within short-term (3 years for day-courses) and long-term university education programmes (4-6 years, day courses), the volume of activities organized by education is assessed by credits, and the quality of the results is assessed by grades/ratings.
The total number of credits associated to a university education programme, set by government decision (HG nr.693/2003), is 180, 240, 300 or 360, corresponding to the duration of studies, 3, 4, 5 or 6 years – day courses, and respectively, one year more for night courses, with reduced frequency or distance education. Thus, a year of day course study has an average of 60 credits.
At this stage, there are several activities carried on with a view to improving education plans in order to ensure a full

compatibility of the national credit system with the European transferable credit system (ECTS).

Higher education quality assurance

The system of higher education quality assurance is undergoing a process of clarification
and finalization.

The Ministry of Education, Research and Youth is financing CALISRO, a research programme on the quality of higher education in Romania, which constitutes the basis for the structuring bodies responsible for ensuring quality at the level of institutions and at national level. Thus, each higher education institution is responsible for ensuring quality for all activities and at all levels, in agreement with the standards of reference, which are being updated.

Each higher education institution has created or is finalizing its own, internal system of quality management. The quality management system within the higher education institution has as its objective the internal processes for assuring quality, including self-evaluation at every level, in agreement with the standards of reference, including the requirements of the systems of external evaluation of quality.

The National Council for Academic Evaluation and Accreditation (CNEAA) functions since 1993 in agreement with the Law on education no. 84/1995, republished and Law no. 88/1993 on the accreditation of higher education institutions and the recognition of diplomas, republished. Aside from the CNEAA there are commissions for the external evaluation of higher education institutions in view of a temporary functioning authorization and of a later accreditation. Up until now, the Council has been responsible according to the law for assuring the quality of higher education, and this was one of its well defined missions.

Due to the fact that up until now the CNEAA has focussed mainly the activity of evaluation in view of temporary authorization and accreditation, the assurance of the quality of current education processes, of research and management have been slightly neglected. In order to revitalize preoccupations in view of the creation of systems of quality in the higher education, a comprehensive pro-quality action has been promoted since 2001. This action was also supported by the MATRA programme. The main idea of the Ministry of Education, Research and Youth was that a real policy for assuring quality cannot be implemented without a proquality culture, without concrete actions promoted from lower to higher level.

Following the results obtained also by the CALISRO research programme, a normative act is under preparation, an act related to the creation of a national system on the assurance of quality of higher education, through the creation of a national structure in the field in charge of managing the whole process. Basically, it will define the general framework, promote advanced European systems of quality assurance, disseminate the best practices in the country and abroad.

The newly created structure will cooperate with higher education institutions in Romania and abroad, as well as with other European institutions, in order to support the efforts of assuring quality of higher education in Romania at the level of EU requirements.

At this moment, the project of the Law for quality assurance in higher education is in the public debate process.

International student mobility

Romanian universities are adapting rather rapidly to more efficient forms of international
co-operation. We can mention:

• Trans-frontier student exchanges between various higher education institutions, for shortterm study visits or practical activities, on the basis of bilateral agreements;

• International student mobility based upon institutional agreements or the affiliation to various university networks, with the recognition of the study periods by use of compatible transferable credit systems;

• Involvement of Romanian university departments or teachers in the offering of transnational higher education including joint training programs, programs typical to virtual universities, to other types of institutions involved in e-learning etc.

• Teaching staff exchange in the field of education and research, in order to cover an existing need in the field at the host university or to offer aid in the development of new
syllabi, new support for learning, new technologies of teaching and learning etc;

• The creation of programs for granting joint degrees on the basis of an agreement between a Romanian university and a foreign university, with the observance of the rules existing in each one of the participating countries.

Student and teaching staff exchange programs were set beginning with 1991 within the TEMPUS program between Romanian universities and universities in EU countries.

Starting with the academic year 1990/1991, several Romanian universities have offered complete study programs in foreign languages like English, French and German, along with the education in Romanian. The teaching staff and the support material for learning have been prepared with technical assistance from partner universities in Great Britain, France or

Germany and with financial support from the TEMPUS program.

The National Office for Student Grants Abroad was created in January 1998. It manages grants through which the Government of Romania supports Romanian students, in order to study abroad for relatively short periods of time (2 to 10 months). Grants are financed by the budget managed by the Ministry of Education, Research and Youth. Furthermore, the Office manages grants set through bilateral agreements in the field of higher education.

Higher education institutions in Romania have been involved in SOCRATES and LEONARDO da VINCI programs starting 1997. After 1998, over 9,000 students were granted mobilities within the ERASMUS program. During the academic year 2003/2004 49 universities participated in ERASMUS activities. At the same time, a significant number of students from various EU countries have studied in Romania.

In the case of the Leonardo da Vinci programme, universities have promoted mainly pilot projects or mobility projects, and have shown a constant interest for the quality of professional training specifically in the technical field and the correlation with essential features of the European labour market. Recently these two programmes joined under the same management team.

The Black Sea Universities network was created in 1997 upon a Romanian initiative in order to develop co-operation among universities from member states of the Economic Cooperation of the Black Sea area, in the field of education, science and culture. Today, this network, whose permanent Secretariat is at Constanta (and which has the support of the Government of Romania through the Government's Decision 196/2003) include over 60 member universities.

Starting with 1998 Romanian universities have taken part in projects developed within the CEEPUS Programme (Central European Exchange for University Students Programme).
This programme supports universities to create networks consisting of at least three universities from various countries in order to promote student mobility for full academic studies, master's and doctorate programmes, as well as to promote exchanges between teaching staff and researchers. After 1998, over 1500 students and teaching staff have been involved in such exchange programmes.
Foreign students who wish to study in Romania are admitted in higher education institutions provided that they pay tuition fees, without entrance contest, if they prove to have the qualification necessary for access to higher education in their home country. Before starting the programmes, they must take Romanian language classes. Aside from the study programmes in Romanian, there are increasingly more programmes offered in foreign languages, especially in English. If a foreign student has started a programme in his/her home country or in another country he/she may continue it in Romania, after recognition of his/her diplomas and after an analysis of the segment of programme followed.
The National Council for Recognition of Diplomas, a structure affiliated to the networks
ENIC/NARIC, functions within the Ministry of Education, Research and Youth and it is in charge of the recognition of diplomas.

The European dimension of the Romanian higher education

The reform of Romanian higher education, awaited by Romanian young people and imposed after 1989 by the transition from centralized economy to market economy, represented the construction of a higher education system as compatible as possible with the European educational space.

Basically, this coordinate means the introduction of the general European model in the Romanian higher education, as a way of ensuring interaction between Romanian and European academic milieus.

The promotion of the European dimension of higher education was possible through an intense cooperation and direct international contacts between Romanian universities and European institutions, international organizations and bodies. The implementation of European programmes has had positive effects on academic structures and curricula, as well as on the new vision of the mission of higher education, including the means of fulfilling this mission.

The efforts of making the Romanian system compatible with the European ones included

the elaboration of the List of fields and reference specializations (promoted by Government Decision no. 1336/2001 and updated by Government's Decision no. 682/2003), which increased the area of competence of graduates, ensured a better insertion of universities in the social, economic and cultural life, and eliminated some deficiencies in the process of authorization/accreditation.

The European dimension of higher education in Romania was promoted by foreign languages study programmes (English, German, French, Spanish, Italian or Russian). These programmes are mandatory in all universities at university level. Both Romanian and foreign students studying in Romania can attend these courses.

Government's Decision no. 41/2002 encourages the organization, within specializations accredited in Romanian language, of activities in foreign languages, including complementary study programmes or study directions, with the approval of the senate of the higher education institutions.

Departments of foreign languages were created, at university level in many technical, medical, exact sciences or humanistic universities. Young Romanians as well as young people from abroad study in those departments.

The training of teachers for teaching foreign languages in universities and their furthertraining was ensured through the participation in international programmes of the « teacher training » type. The teaching staff perfected in their own field of activity through international programmes, as well as university managers who faced a new type of university management, which ensures transparency and efficiency to higher education.

Mandatory foreign language tests were included for the degree/diploma examination, for admission to doctoral post-graduate studies and various research programmes.

Students and young academics from the Romanian higher education are encourages to participate in post-graduate programmes, such as masters and joint doctorate degrees with foreign universities or with international research programmes.

Students take part in summer training and Olympiads, international contests and festivals,

and show the level of training, the diversity and quality of higher education programmes.

Diplomas emitted by universities are, upon request of the beneficiary, written in one of the foreign languages. The introduction of the *Diploma Supplement* is a mechanism of implementation of the Lisboa Convention, promoted by Romania.

The social dimension of higher education

The state budget ensures most of the financial resources for university higher education and research, respectively 4% of the gross domestic product (as stipulated in the Law on education no. 84/1995).

Aside from the budgetary resources, universities may mobilize additional sources of revenue within legal terms. Higher education is allocated a distinct research fund from the aggregate research budget. According to the law, funding for research by university is allocated on competitive criteria, and depends on national priorities, and past or expected performance.

The funds allocated from the budget of the Ministry of Education, Research and Youth are utilized for basic and complementary financing, for investments in objectives, for funds for student scholarships, as well as for their social security. The level of funds allocated in 1999 from the state budget was 1.700 billion lei (110 million USD), and in 2003, it was 5.400 billion lei (160 million US dollars).

Students at graduate and postgraduate level, including those enrolled in doctoral studies, benefit from the 75.000 places supported every year from the budget, and approximately 25% of the students are granted scholarships from the state. Within the structure of these scholarships :

5% performance scholarships, 25% merit scholarships, granted for outstanding results ; 30/40% scholarships ; 30/40% scholarships for social support.

The reconsideration of the scholarship granting system lead to a slight increase of the number of scholarships for social support and merit scholarships, with a significant modification of study scholarships.

Furthermore, students may receive scholarships on the basis of contracts signed with economic agents and other legal and natural persons, as well as study loans extended by banks on such terms as the law provides. In practice, the latter is at its beginning, and Romanian banks have not been too sensitive to existing requests so far.

In order to train specialists in the rural area, students from rural areas are stimulated by granting 1000 scholarships per year (Government's Decision no. 1020/11.10.2001), each scholarship has a quantum that exceeds the average study scholarship.

Some students from underprivileged families, enrolled with tuition fees may be granted exemption or reduction of such fees, upon decision by the university senates.

General eligibility criteria for scholarship are decides by the Ministry of Education, Research and Youth and by the Ministry of Labour, Social Solidarity and Family. The specific criteria for performance, merit, study and social support scholarships are determined by the university senates. These scholarships are subject to indexation. The minimal quantum of students' scholarship shall cover the accommodation and meal expenditure. In order to support young doctorate students (up to 35 years-old), in view of reducing the process of « brain drain », Government's Decision no. 1004/17.09.2002 grants every year 100 specific grants allowing them an additional funding equal to minimum wage (2 million lei).

Complementary funding conferred to universities by the Ministry of Education, Research and Youth consists of stipends for accommodation and meal expenditure, funds allocated based upon priorities and specific norms for equipment and other expenses for investments and capital repairs, funds allocated on a competitive basis for university scientific research.

Every year, the Ministry of Education, Research and Youth confers scholarships for university and postgraduate study trips abroad on a competitive basis.

Universities shall meet the food, accommodation and transport costs incurred by the students' practical activities that are concentrated outside the university center. Students benefit, as

well, by free summer and winter camps, free medical and psychological assistance in State/owned polyclinics and hospitals, as well as by half the regular fare rate on the local public transportation network and on the domestic motor, railway and naval transportation network, during the whole calendar year.

Orphan students or those who have resided in orphanages benefit by free fares on the transportation categories mentioned above.

Students enrolled in state as well as private education institutions benefit by half the regular fare rates to museums, concerts, theatres, operas, films, other cultural and sports events organized by public institutions.

The representativeness of students in the university senates is ensured by law and the university charter.

Life long learning

Education and training – two essential, priority concepts for the EU countries, are also priorities and main fields of interest in Romania.

In Romania, carrying on lifelong learning programmes supposed the elaboration of a new

legislation, of efficient policies and strategies, dynamics which involved numerous actors: young people, as well as older people, a population with professions that had become obsolete after 1989, unemployed people, but also education institutions, schools, universities, economic agents, commercial companies, foundations, associations, various social partners.

The concept has become operational after the apparition of the legal frame, namely the Law on Education no. 88/1995, with further modifications and supplements, which stipulates at its chapter section IV that legal or natural persons may organize, together with education units or institutions or separately, adult qualification, further-training or professional reconversion

courses. These training courses grant certificates of professional competence recognized on the labour market.
The law stipulates facilities for those who follow further-training courses for professional
training, namely the right to standard salary, for those issued from public institutions and the payment of housing, per diem and transport, for those who take courses in other localities than that of their domicile.
For the training of adults the same law stipulates the possibility of organizing institutions and networks of open or distance education, that make use of modern communication and information technologies. The provisions of the law apply in all universities in Romania.

Priorities for implementing the recommendations from the Declaration of Bologna

As a European country, Romania is very receptive to all changes occurring in the education system in the continent and promotes all necessary measures in order to harmonize the legislation in the field, to create the unique European space for higher education. Considering the progresses already made, we envisage the following for the stage immediately following the meeting of the ministers of education in Berlin:
- the elaboration of a comprehensive legislation that would encourage university autonomy, as well as increased accountability at this level; in this respect, debate on the draft of the law on higher education will be resumed and submitted to Parliament in the first half of next year;
- the structuring of higher education in cycles, finalized by degrees (bachelor), dissertation (master) and doctorate thesis;
- the multiplication of efforts in view of ensuring quality particularly with higher education institutions and through a national organism, in the context of European evolutions;

- a full operationalization, at national and international, of transferable credit systems;
- the support of student and teacher mobility through Socrates, Leonardo da Vinci programs, as well as through an active participation to the TEMPUS III program;
- the participation of Romania in programs and actions aiming at the internationalization of higher education.

Following the meeting in Berlin, Romania will review these priorities, adding other priorities, according to the decisions that will be adopted and will proceed to a more systematic schedule for their implementation.

SHARING THE EXPERIENCE AT UNIVERSITY LEVEL IN IMPLEMENTING BOLOGNA REFORM

Gabriela Maria Atanasiu[2], Ioana Vlad[3]

1. Introduction

In June 1999 Romania signed the Bologna Declaration in the wish to participate in the establishment of a European area of higher education. The process has been initiated in the framework of the EU objectives and intend to build up the "most *competitive and dynamic knowledge –based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*" (Lisbon Council, 2000), up to 2010.

Six main directions, which converge to the same goal, have been stated by Bologna process.

These directions are:

- A system of academic grades easy-comparable for the whole Europe,
- A two-cycles system of higher education (HE),

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- A generalisation of ECTS, enhancing the mobility of all participants: faculty, students and researchers,
- Implementing the concept of quality assurance (QA) in higher education in the whole European Area,
- Enhancing the co-operation between all countries and the know-how transfer, to raise the European dimension of the HE.

Prague Conference (May 2002) stated that it is a strong need to make the European area of HE more attractive to the rest of the world. It was also there recommended to pay more attention to the implementation of QA policies.

The Bologna process and Bologna reforms are closely monitored in all signatory countries and a know-how transfer started from EU countries to the new partners, including the countries from the Central and East Europe and Balkan region.

Last year, the Berlin Conference (September 2004) stated short-term goals for the present period: generalising the two-cycle system, introducing the diploma supplement, for transparency of the qualification, and emphasised new progress in the QA field. Now, just before the Bergen conference (May 2005), a Workshop dedicated to transparency and Bologna reform and the other actions as well ARE favourable occasions to assess the progress in fulfilling these tasks at each level.

In Romania's actually context it is right now much public discussion on quality of education, including the higher education. The concept of quality has always been part of Romanian academic tradition. The priorities changed during the last fifty years. In East Europe, in Romania as well, there has been experienced the concept of higher education over centralisation. 1960s slogan was "80,000 students in engineering must graduate in the next five years", no matter how, and the labour market enrolled them. Similarities might be found in all former communist

countries. The relationship between higher education and society has changed in the last decades, when society has become more interested in higher education [8], but the young people's priorities and interests became more pragmatic and focused especially on humanistic careers. All over the world, the governmental allotted less money for HE, to stimulate the entrepreneurial incentive from universities. Nowadays, the relationship between higher education and the labour market changed and a new philosophy related to the total cost minimisation emerged. In the case of a State University, both the society and the student are the clients.

The client's satisfaction- concept [1], [2] and development of long-term relationships based on confidence lead to the requirement of quality improvement as a continuous process of analysis, in order to discover and improve weak points.

Since 1999, in Romania there was created a new frame for QA management in HE.

Bratianu [1], [2] defines the quality assurance as the assembly of planned and systematic activities implemented into the quality system, either internal or external as related to an organisation; some activities related to the quality control and to the quality assurance are interdependent.

A higher quality is often perceived as raising the involved costs of the education in all its aspects.

2. National Context

Supported by institutional reforms that accelerated the growth of academic autonomy and the establishment of new change mechanisms, the Romanian Higher Education

system evolved, with logistic support and institutional know-how transfer from the Ministry of Education and Research projects such as PHARE HER RO961, and others. The development of the international dimension of Romanian universities, especially during 1998-2000, has decisively contributed to a new vision regarding quality in universities. The initial efforts of the Ministry of Education and Research during the inception of the Bologna process to develop a top-down strategy were sustained by the institutional bilateral project MATRA, MAT0/RM/9/1, financed in 2000-2003 by the Netherlands. This project had a significant contribution in developing a bottom-up organisational culture in this area, amplified to system level by its implementation in 7 pilot universities from Romania.

After a stagnation period in reform processes, in the autumn of 2003 the Declaration stated in the National Conference on Higher Education expressed the commitment and necessity to support the Bologna process. The new legislation of June 2004 (Law no. 288/2004) stipulates the reorganisation of university studies in three cycles (Bachelor, Master, and Doctoral). Starting with the academic year 2005-2006, Romanian Higher Education structure will be as follows: the first cycle (180-240 ECTS) – Bachelor Study Programmes, the second cycle (90-120 ECTS, exceptionally 60 ECTS) – Master Study Programmes; and the third cycle (3 years and in special situations 4 or 5 years) – Doctoral Study Programmes. In parallel, there is the former classic structure of 5 years in engineering, 4 years in humanities, economy, arts, exact and social sciences, and 6 years in medicine.

The Romanian national Higher Education system comprises both state and private accredited education institutions. There are 56 public institutions of the state HE sector in Romania and other 20 private accredited institutions.

In the Academic year 2002-2003, there were 596,297 students enrolled in state universities and 139,038 students in private universities.

Starting with the 2005-2006 academic year, the Romanian Higher Education will be reorganised to ensure a real compatibility with the corresponding European structures. The 300 specialisation existing now will be replaced with 57 general domains, following the Governmental Decree no. 88/2005. In the first study years, the students will generally approach a domain, which they will further broaden during master and doctoral programmes.

3. Criteria of Quality Assurance in the Context of Bologna Statement

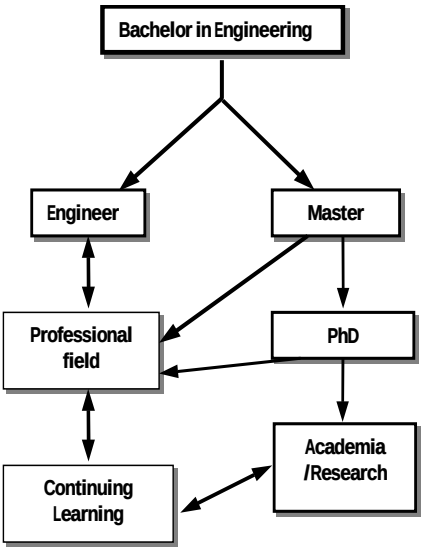


Fig. 1 Bologna-based Engineering career

The criteria of quality assurance include several important tasks of the academic structures and specific procedures of vital importance for an academic programme [3], [4], and also these criteria contribute to an institutional culture orientated to quality and success. The traditional approach considers the student as the object of our work, or moreover "an interested part".

Bologna statement requires major changes of the curricula and programs. The engineering career will be developed according to the block diagram shown in Fig. 1.

The Bologna statement considers the student as an involved "part" [1], [2], [4], and [6]. This idea modifies the practical approach of the university role. The university becomes an institution that offers education, creates skills and success-oriented performance according to the requirements of all involved parts: society, local, regional or global community, public and private employers, as well as to those of faculty and students.

The main role of the academic review process is the continuous striving for excellence and efficiency in its teaching and research through systematic review of its performance and directions on every level from that of departments and programs through faculties and ultimately to the university as a whole.

Student exchanges and international co-operation require insight into quality. Also, the European Union with an open labour market asks for insight into the quality of the curricula and the standards of the graduates' [8].

During 2001-2003 we have been involved, together with other seven pilot universities, in the pre-accessing to EU project MATRA - MAT0/RM/9/ "*Developing the National*

strategy in the field of Quality Assurance in Higher Education in Romania".

The MATRA - MAT0/RM/9/ project main purpose was to disseminate the existing knowledge and emerging changes that occurred after Bologna statement in the Dutch, and in general in the European field of higher education.

The Civil Engineering program of study with English tuition from the Civil Engineering Faculty of the Iasi Technical University and the Computer Science specialisation from "Polytechnica" Bucharest University were very active among the 16 pilot units (two/university) of this project. The project enhanced QA at program study level and QM at university one.

The MATRA criteria were laid out in five areas:

a. Mission, objectives, and program outcomes
b. Program structure and content
c. Learning and teaching environment
d. Quality management program, students, graduates
e. Adequacy and quality of teaching and support staff.

The first phase of the project focused on trials of self-evaluation in a "learning by doing'' concept. All about the external audit was also an objective involving only the pilot programs. The second phase consisted in external audit visits and analyses of the obtained results.

An "incisive" self-evaluation report might be well focused on MATRA criteria, in particular the provisions related to program objectives and outcomes. In our project, at the level of Faculty of Civil Engineering there were involved staff members, the Faculty or department management, the institution and its administrators in a critical evaluation activity. The self-evaluation report (either in the trial or in the final alternative) identified areas for improvement and stimulated thinking about how to make those improvements. It provided visiting peers with international participation with a well-

focused and analytical body of information to use when preparing for the site visit.

A report always helps developing a model of self-evaluation and visitation that will be then disseminated for broader use.

The information used in the self-evaluation report always must be synthetic, showing some necessary details to allow reviewers to appreciate if the information is essential for the visitor or evaluator.

The MATRA based checklist included above criteria that were designed with flexibility. The key point was whether the faculty has attempted to meet the criteria. Then, the next step was implementation and discussion of the review trial. The investigation methods in relation to the use of the new criteria of quality assurance required studying: the self-evaluation report, the curricula, references, consulting CNEAA standards.

In our project there were analysed the following items:

- The program's educational objectives: Their validity in terms of the discipline and the needs of students, graduates, and employers.
- The program outcomes: whether the intended results are valid in terms of the discipline and professional field; whether they are being achieved; whether these results provide an appropriate basis for evaluating the students and the program.
- The quality management process: whether the quality of the program and student work is being properly assessed on a regular basis, and whether the results are used to make improvements.

The SWOT technique was a useful process for internal or external program reviewers. It could be used to analyse a certain aspect of a program.

At the end, however the self-evaluators' and external audit commission's conclusions stated whether and how the program meets the relevant criteria [3].

In the Audit Commission the international auditor's feedback, which is a former teaching staff from Civil Engineering Department, now a well-known professor from the Catalunya University was very relevant and helpful in explaining particular aspects of Bologna process.

4. Experience of MATRA project –Orientation on Outcomes

4.1. Generals

The project's motto "Learning by Doing" was a permanent challenge and the main aspects and activities have been focused on self-evaluation, external (simulated) audit, and finally on the international audit.

The outcomes could be considered new quality criteria as they have been revealed from [4] and [9]. Direct discussions involving faculty members (young and seniors ones), freshmen, graduate students, employers, heads of research institutes, members of professional associations and alumni were used and their very valuable results are now briefly discussed.

4.2. Employers' Expectations

In the framework of MATRA project direct discussions and interviews were the main tool used to gather information about employers' expectations versus graduates' professional and ethical skills. In addition, most of data were obtained using questionnaires. The external

audit program and checklist contained also discussions with employers and members of professional associations [7].

Employers and managers were selected from those of Romanian construction companies, or research units, like: COMINCO -Bucharest, Bucovina branch, SCCF Moldova Iasi- , the Research Centre of the National Road Administration County Council Iassy, ITELS Iassy, CONEST - Iassy, ARACO Iassy branch, CONSTRUCȚII FEROVIARE Iassy, S.C. CONSTRUCȚII 1 SA Iassy, D.R.D.P. Iassy, S.C. CEPROHART SA Braila, INCERC Iassy and others.

Data gathering started in 2001 and continued in 2002 and 2003. The Alumni Association of the Civil Engineering Faculty also helped us. The simplest approach was to ask the following questions, then to launch the questionnaires:

- Would I hire a graduate of this program for professional employment in this field?
- Would I admit a graduate of this program for doctoral-level studies in this field?
- In either case, why?

There were obtained valuable suggestions focused on improving the students' practical and vocational outcomes:

- More importance should be paid to the technological field practice in the site, learning from the sixty years experience of the faculty;
- More emphasis should be put on knowledge of modern materials , technologies and resources management;

Fig. 2 displays the employers' rating related to the quality of engineering education, from 1 (very high level of knowledge) to 5 (very low level of knowledge). Field (1) means the ranking of practical knowledge for Technical Drawing,(2) – for Land Surveying, (3)- for Engineering Mechanics, (4)-for Civil Engineering, (5)-for Reinforced

Concrete, (6) – for Computer Aided Design, CAD , (7)-Technology, (8)-Soil Mechanics, (9)Management, (10)-Foreign Languages, (11)-Others.

A satisfactory qualitative level for a Bachelor civil engineer requires at least:

- Using AutoCAD software, and understanding any technical drawing;
- Knowing testing methods that are used by site laboratories;
- Knowing the newest land surveying methods and measuring instruments

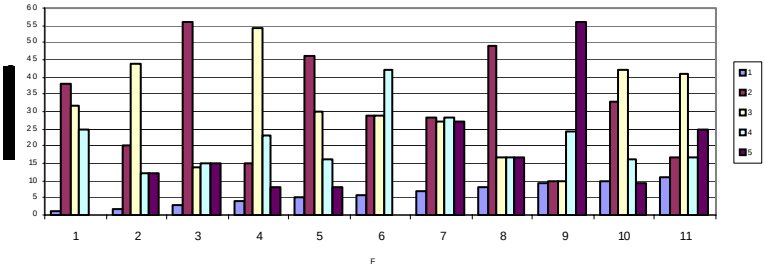


Fig. 2
Employers' Expectations on Quality of Engineering Education

In a broad extent, the general competencies of a young graduate, as a future employee, are:

- **Design or technology-oriented skills for Bachelor in engineering, required by small companies;**
- **Scientific and research-oriented skills, i.e. PhD's and masters required by a reduced number of research and consulting branches. On the other hand, the research units require - 2-3 years of site practice;**

- **Knowledge of at least one foreign language is an advantage in any field of activity;**
- **Ability to work in a team, being creative and hardworking;**
- **Ethical requirements are important;**
- **The ability of fast learning is appreciated.**

This overlook of employers' expectations is dispersed [4] so that it is strongly required to establish unique procedures oriented to the identification and evaluation in which extent the performance and skills required by managers are fulfilled.

Also the fast and relevant changes that occur during the first years of engineering career must be identified, or predicted as well as the students' expectations related to the curriculum, laboratory, sport or foreign language facilities.

Briefly, the self-evaluation activity might identify all conditions that converge to create a solid technical background and a graduate‘s psychological and ethical profile that will allow rapid integration in the profession‘s exigencies.

4.3. Graduates' Expectations

The outcomes of 1996-2002 series were monitored. Fig. 3 presents the graduation ranking only for one series, since the trend is similar to about all other series. The quality of answers during defence of the diploma project, the use of new IT, structural and technological tools were the main elements, which led to the best result [7].

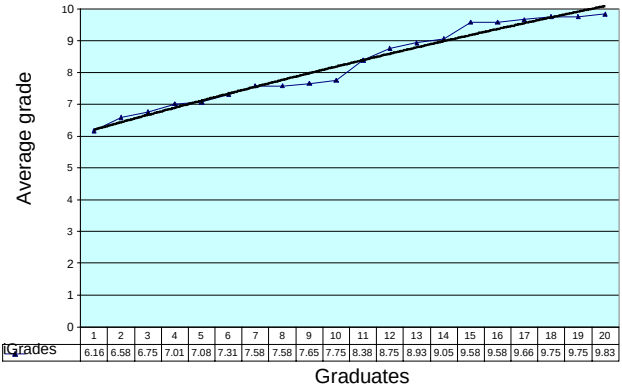
In the framework of MATRA program there were obtained valuable information about the graduates of the Civil Engineering specialisation with English Tuition, 1996-2002 series. Answers were obtained by questionnaires, phone and e-mail interviews, since most of them were involved in Master or PhD –level studies in Romania, Europe, and USA, as shown in Fig. 4.

Most of graduates work in their field, in Romania or abroad. Some of them have already got the PhD degree from Romanian Technical Universities, Arizona State U., or they have got a Master degree in Computational Engineering, Soil Mechanics, Structural Rehabilitation or other in Romanian Technical Universities, or in Yokohama University, Bochum University, Maryland College Park, etc [7].

Their answers were focused on the background and skills that has been appreciated as satisfactory for research or design activities.

The necessity of more site practice appears in all answers. The technical English was an advantage both for alumni involved in graduated studies abroad, and for those working abroad or in mixed Romanian –foreign companies.

In our field, there is no major threatening of unemployment. Thus, in 2001 104.3% percentage of available jobs versus the total number of Civil Engineering and Architecture graduates of Technical University Iasi was obtained; in 2002 –82% [7], and in 2003 - 102.8 %. Data were obtained by courtesy of the Professional Advice Office from the Technical University of Iasi, which is permanently monitoring the Romanian and European labour market.



Grades	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	6.16	6.58	6.75	7.01	7.08	7.31	7.58	7.58	7.65	7.75	8.38	8.75	8.93	9.05	9.58	9.58	9.66	9.75	9.75	9.83

Fig 3. Results at the Graduation Exam, Civil Engineering program, 2002 Session

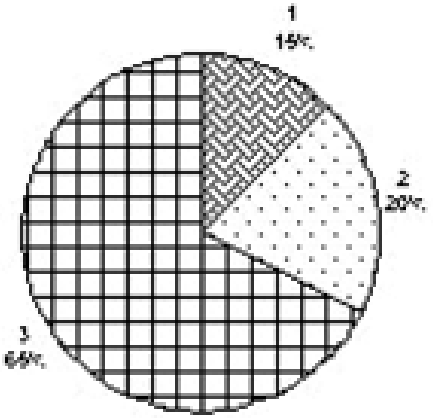


Fig. 4.
The Monitoring Civil Engineering (English tuition) Alumni' Careers (1996-2003)

The diagram shown in Fig. 4 presents percentages of: (1) Master and PhD students and graduates studying abroad, in USA, Australia, Japan; and Europe, (2) Master and PhD students and /or graduates in Romania; (3) Working in engineering and connected fields in Romania and abroad.

5. Transparency and Importance of the Diploma Supplement

In the present context of Ministry regulations, the Diploma Supplement (DS) is a mandatory document that will accompany the graduation HE diploma beginning with the academic year 2005-2006. It resulted as an absolute requirement, and a consequence of the rapid globalisation.

The Diploma Supplement provides information on the content, status, level of qualification. The transparency and recognition activities come under the authority of the Ministries of Education from EU and accessing to EU countries. In Romania, graduates of the next academic year, 2005-2006 will receive DS.

- The concept of a Diploma supplement is not new, but the traditional Romanian one contained only the owner's transcript of the curriculum and obtained grades, in Romanian. Any usage abroad required (and yet requires) an official translation and approval from the Ministry of Education.
- Although it contains the particular data of the owner, DS is neither Curriculum Vitae, nor a substitute of the original transcript. The qualification should be recognised finally by the labour market needs and commands. The ECTS system, which is also compulsory, is reflected in DS.
- The document written in two languages, in our case-Romanian and English; it is more readable and easy comparable with similar documents from other countries;

- It contains information about the curriculum, (Section 4), the obtained grades and his/her ranking in the graduation series, and other details. Showing the ranking is very important and it improves the transparency, avoiding additional recommendation or specifications from faculty staff (Section 4), saving time.
- The overview of the National HE System (on the last page of DS) is also an important progress, explaining HE structure and the outcomes.
- The academic and professional recognition is improved by the Diploma Supplement , due to Section 5: Information on the function of the qualification,
- Graduate's mobility (if any), is given by Section 6.
- It may be estimated that the Diploma Supplement will allow and guarantee the lifelong learning, a fast access to the world - wide labour market and to individual shift in new qualifications.

6. Conclusions

Globalisation, by increasing the interdependence among the people of the world, has enhanced the need for global collective action and the importance of global public goods [6]. Discussions about rapid or gradual reforms in this context may last, but now it is a reality that Bologna Process will change our perception, To identify expectations of all involved factors is a complex action.

The quality assurance in the Romanian technical higher education presents nowadays some particular features like:

- The program mission should be oriented to:
  - Provide the needed competencies for each level of study programs, **BA** or **MA**.
  - Develop practical skills required by employers.

- Train future specialists, adapting rapidly to the new opportunities of the labour market in this new pre-accession and future accession to EU context.

The objectives of MA program are mainly related to:

- Gain a competitive rank in the future European space.
- Pay attention both to the educational component and to research at the national and international level.

There are strongly appreciated:

- The ability to identify and formulate, analytical spirit
- **BA** -The ability to solve practical problems of the professional field, in the site,
- **MA** -The capacity of conceiving and designing main elements of a system (structural, engine part, computer component or software, according to the specific field), the ability to work in a research team, to seek new solutions, to communicate efficiently.

For the next future, we appreciated that the *Overview of the Accreditation Procedures* and *Criteria for Engineering Programmes in Europe* will be the core of a system of European accreditation of engineering education and they will promote the global recognition of engineering degrees.

It is clearly that some main changes have be obtained at the faculty level, in the following directions:

- Orientation to outcomes and the focus on clients' expectations, the permanent and constant ability to attain the proposed goals, the continuous improvement (reassessment) of the "discovered" weak points.
- Review emphasis is to evaluate the need of reassessing curricula, avoiding overlapping and establishing priorities for programmatic as well as pragmatic development. In this

respect there is required to evaluate the effectiveness in all major fields of a program, to seek new ways to improve and to renew.

In which extent the results obtained during the two years period of know-how transfer were of benefit for the pilot programs is a challenging question and the answer may be obtained during the real evaluation process, which will start in Romania according to the new Law of Quality in education.

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THE EDUCATIONAL SYSTEM OF THE TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

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1. Short history of Technical University of Cluj-Napoca, Romania

The history of technical higher education in Cluj Napoca goes back to the beginning of the previous century. The unification of the Romanian provinces into a single state, on December 1 st 1918, opened new perspectives for education. On February 1 st 1920 the Industrial College was founded in Cluj-Napoca. The new education institution passed afterwards through a series of transformations, becoming the College for Technical Conductors in 1922. It was the only college with a major in electrical engineering in the country and the forerunner of the Cluj Polytechnic Institute. Another technical college founded in 1920 was The College for Conductors of Public Works, specializing in roads and bridges, forerunner of the Faculty of Civil Engineering. In 1937, the College for Technical Conductors, which had an excellent reputation within Romanian industry, was reorganized as The Electromechanical College.

In 1947, the Cluj Mechanics Institute was founded, following a petition addressed to the Ministry of National Education regarding the foundation of a Polytechnic Institute with three faculties (civil engineering, electrical engineering and forestry) in Cluj-Napoca, under the provisions of the August 1948 law for the reform of education. The Mechanics Institute had a faculty with two departments: Thermo-technics and Machines. The increasing need of technical specialists helped the Mechanics Institute turn into the Cluj Polytechnic Institute in 1953.

After the 1989 Revolution, Romanian higher education came back to the former tradition correlated to the Western system. In 1992 the Polytechnic Institute was renamed to the Technical University of Cluj-Napoca, and the three existing faculties at that time were restructured into seven faculties: Automation and Computer Science, Electronics and Telecommunications, Electrical Engineering, Civil Engineering ,Machine Building, Mechanical Engineering, Material Science and Engineering, as well as the Technical, Business and Administration College. Starting with the academic year 1998-1999 the structure of the Technical University was completed with the Faculty of Architecture and Urban Planning.

Nowadays the Technical University of Cluj-Napoca trains specialists in the technical field (mechanical, electrical and civil engineering as well as architecture) through long and short term education programs, postgraduate and PhD studies. It has over 12,000 students.

Scientific research has been an essential preoccupation of the academic and research staff of the TUCN. The scientific potential of the University made it capable of organizing a series of outstanding scientific events attended by a large number of Romanian and foreign specialists. The practical

results of the research activity are reflected in numerous contracts and projects with domestic and international financing. The most important projects are those with CNCSIS, ANSTI, and PNCDI as well as those financed by the European Union Commission: EUREKA, COPERNICUS, COST, PC5 and PC6.

The University's correlation to European standards is reflected by the international conventions it is part of and by its participation in a wide range of European education programs: TEMPUS-PHARE, SOCRATES, ERASMUS, LEONARDO, CEEPUS.A series of international conventions, agreements and protocols were signed with universities from France, Italy, Germany, the USA, Austria etc. Since 2003 TUCN has been a member of the European Association of Universities.

Nowadays the Technical University of Cluj-Napoca is a modern technical higher education institution, passing through a period of genuine rebirth and confirming authentic capabilities for scientific and technical creation.

2. Education

2.1 Long-term education

The long-term academic teaching takes place in the 8 faculties during 5 years (6 in the case of Architecture). The period of studies concludes with a diploma examination made up of a dissertation project and general and specialized exams after which the graduates are given the right to receive the title of graduate engineer in the field and specialization attended.

- Faculty of Architecture and Urban Planning
    - Architecture
- Faculty of Automation and Computer Science
    - Automation
    - Automation (courses taught in Romanian),

  - Computer Science (courses taught in Romanian),
  - Automation (courses taught in English),
  - Computer Science (courses taught in English).
- Faculty of Civil Engineering
  - Civil, Industrial and Agricultural Buildings
  - Railways, Roads and Bridges
  - Civil Engineering (courses taught in English)
  - Economic Engineering in civil engineering
  - Building Equipment
  - Installations and Equipment in the Atmosphere Protection
- Faculty of Machine Building
  - Manufacturing Technology
  - Manufacturing Technology – M.E.T. (German)
  - Machine tools- MU
  - Industrial Economic Engineering
  - Industrial Robots
  - Industrial Robots (English)
  - Mechanical Engineering
  - Mathematical Engineering
  - Physical Engineering
  - Industrial Design
- Faculty of Electronics and Telecommunications
  - Industrial Electronics
  - Medical Electronics and for Instruments
  - Microelectronics and Optoelectronics
  - Digital Communication Networks
  - Radio communications
  - Optical Communications
- Faculty of Electrical Engineering
  - Electrical engineering
  - Metrology

  - Electric Drives
  - Electromechanics
  - Power engineering
- Faculty of Mechanical Engineering
  - Agricultural Machines
  - Road Vehicles
  - Thermal Machines and Equipments
  - Mechatronics
  - Fine Mechanics
- Faculty of Materials Science and Engineering
  - Materials Science and Engineering
  - Materials Processing Engineering
  - Engineering and Environmental Protection in Industry
  - Equipment for Heat Treatment

2.2 Short term education

The short-term education is organized around the Technical, Business and Administration College, with different technical and economic – management specializations. The period of studies is of 3 years and it is concluded with a graduation exam as a consequence of which the graduates receive a Conductor Engineer Diploma. The best among them can continue their studies in the long-term leaning system within the initial or a related field after having passed certain difference examinations.

- Faculty of Automation and Computer Science
  - Computing Technique
  - Automation
- Faculty of Civil Engineering
  - Building Technology
  - Railways, Roads and Bridges
  - Building Services

- Faculty of Machine Building
    - Metal Processing Technology
    - Metal Processing Technology (Teaching site in Satu Mare)
    - Metal Processing Technology (Teaching site in Zalau)
    - Machines and Equipment Operation
    - Machines and Equipment operation (Teaching site in Satu Mare)
    - Machines and Equipment Operation (Teaching site in Zalau)
    - Production Management
    - Production Management (Teaching site in Bistrita)
    - Production Management (Teaching site in Zalau)
- Faculty of Electronics and Telecommunications
    - Electronics
    - Communications and Postal Operations
- Faculty of Mechanical Engineering
    - Automotive engineering
- Faculty of Materials Science and Engineering
    - Production and Management in the Small and Medium-sized Industry
    - Metallurgical Processes Control (Campia Turzii)

2.3 Post graduate Studies

The post-graduate studies are being organized within the eight faculties for the long term education graduates. The duration of these studies is between two and four semesters. The main specializations are:

- Faculty of Architecture and Urban Planning

  - European Specialization in Architectural Restorations
  - Urban Planning and Local Public Administration
- Faculty of Automation and Computer Science
  - Modern Techniques of Automatic Control
  - The New Generation of Computers
  - Information Systems
  - Basics of Programming
  - CISCO Academy
  - Microsoft Academy
- Faculty of Civil Engineering
  - Rehabilitation Management of Communication Lines
  - Structural Rehabilitation and Buildings Hygrothermics
  - Energetic Management of Inhabited Buildings
  - Special Building Structures and Computer-aided Design
  - Management and Performance Technologies
  - Management of Water Resources
- Faculty of Electronics and Telecommunications
  - Complex Electronic Circuits DESIGN TECHNIQUES
  - Electromagnetic Compatibility in Electronic systems and devices
  - Modern Telecommunications Techniques
  - Multimedia Technologies
  - Microelectronics and Electromagnetic Compatibility
  - Telecommunications and Multimedia Technologies
- Faculty of Electrical Engineering

  - CAD – Computer-aided planning
  - Electric drives automation
  - Power Engineering
- Faculty of Machine Building
  - M.Sc. Degree in Marketing
- Faculty of Mechanical Engineering
  - CAD of low-pollution thermal machines
  - CAD of agricultural and food industry machines
  - Energy in transport and thermal equipment
  - Logistics of road transportation
  - Road traffic engineering
  - Advanced methods and means in quality management and engineering
- Faculty of Materials Science and Engineering
  - New special property materials
  - Special procedures in materials processing engineering
  - Special procedures in the machine and equipment manufacturing engineering

2.4 Ph.D. Studies

The PhD studies are organized in two ways: with and without attendance. The first lasts for four years and it is financed by the Ministry of Education and Research. The second lasts for 6 years. For a number of 131 PhD coordinators there are 213 PhD students with attendance and 803 without attendance, for a number of 9 domains.

3. Distance and E-Learning

The Postgraduates studies are developed through a specialized department: the Continuous Education and Long Distance Learning Department -DECID-.

3.1 The opening to knowledge through - DECID"

The Continuous and Long Distance Learning Department is an independent structure within the Technical University of Cluj-Napoca, under the supervision of the Technical University leadership, with the main goal to promote and administrate the postgraduate programs.

The Department was funded by Prof. Liviu MORAR, Msc. Ph.D. that initiate an European TEMPUS project with the aim to define and structure an continuous and long distance education and also to provide the first curses of that type. As result is DECID a structure which functioning definition was certified by an international peer group of experts all the programs that are running in DECID having the certification of the Ministry of Education and Research.

In the DECID leading board are representatives of the Academia, Business and Industry that is positively influencing the programs offer in accordance with the University staff competences, the evolution of the industrial environment and the forecast of the national development.

The industry influence over the DECID activity may be observed in the number of postgraduate students in different groups of specializations that leads to the redesign of the marketing and public relations and the search for new strategies regarding the implementation of the Long Distance Education methods and programs in the fields where this type of applications seems to be a suitable alternative at the traditional face-to-face learning method. As result in 2005 start the introduction of the Long Distance version to the postgraduate programs.

Five types of programs are running currently through DECID:

a. Postgraduate Academic Schools;
b. Master programs;

c. Specialization postgraduate programs;
d. Upgrading programs;
e. Professional conversion programs.

The Postgraduate Academic Schools duration is of 4 semesters and are finalized by a graduating project. The PAS (Postgraduate Academic School) contains regular courses and a number of optional courses connected with the main topics, this frame ensuring a higher qualification, complementary to the oane that the student previously graduates. The completion of qualification is certified by a DIPLOMA for Postgraduate Academic School graduation.

The **Master** programs duration is of 1, 1½ or 2 years in accordance with the Master domain. The completion of qualification is certified by a DIPLOMA of MASTER in the graduate field.

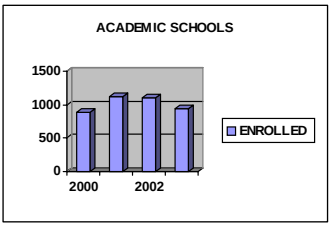
The **Specialization** programs duration is 1 or 1½ years and assure the postgraduates students specialization in a field that is not necessary to be connected with the students graduation field. The completion of qualification is certified by a SPECIALIZATION DIPLOMA.

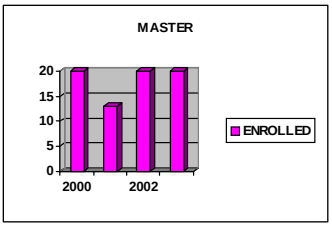
The upgrading programs duration may be from 1 day to 1 year with the aim to ensure the qualification in a very narrow domain. This type of programs is generally made at demand. The completion of qualification is certified by a Upgrading Certificate.

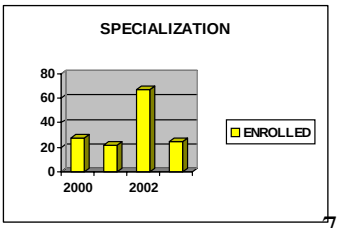
The Professional Conversion program ensures the qualification in an extended domain, compared with the one that the student first graduates. The completion of qualification is certified by a PROFESSIONAL CONVERSION DIPLOMA.

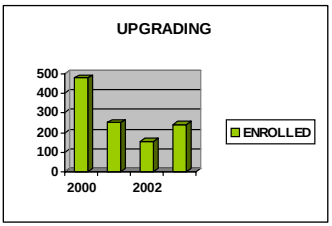
The dynamics of the DECID results from the evolution of the postgraduates students number (divided or not on the type of

running programs) and the evolution of the new proposed courses number on different type of programs.









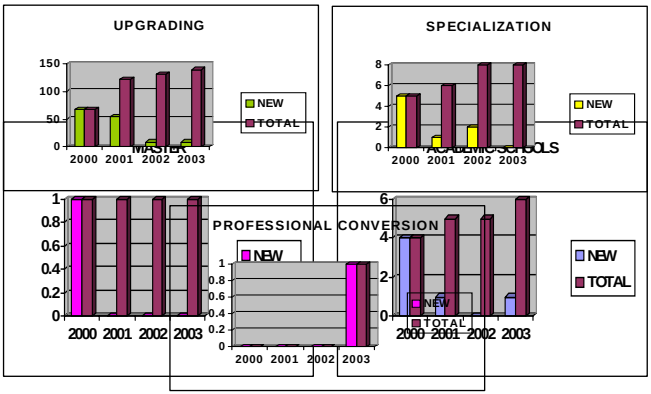


Fig. 1 The evolution of the postgraduate students number divided on the type of programs

Fig.2 The evolution of the new proposed courses number for each type of program

3.2 E-learning

Within the Technical University of CLUJ-NAPOCA (The Electronics and Telecommunications Faculty) has been formed the REGIONAL CENTER OF OPENED AND DISTANCE LEARNING (CNODESC), consequently denominated within other 7 centers in the country, by an Order of the Ministry of National Education, in February 1998.

At present, CNODESC is being integrated within The Center of Multimedia Technologies and Distance Education from TUCN and it is part of the structure of the Department of Continuous Education and Distance Learning. The Center possesses, in order to develop specific DE activities, computer and multimedia subsided rooms. The subsidy of CTMED has been integrally realized by international programs of education and research that we have been attended on, the acquired equipments having a value of over 100.000 EUR.

The main activities of CNODESC aim to develop courses and learning materials for distance education (DE), as well as to develop the communication infrastructure needed for this type of education by using the ROEDUNET network and by collaborating with the TUCN Center of Data Communications. In order to achieve this, a communication software package (Integrated Communication Environment – ICE) has been finalized, especially developed for long distance learning applications.

CNODESC has developed by now 6 courses, experimentally offered to students from the "Multimedia Technologies" specialization within the post-graduate studies of the Electronics and Telecommunications Faculty. The courses are

being produced by CNODESC and are covering the following domains:

- Data transmissions for multimedia communications,
- Java programming,
- Multimedia systems and applications,
- Multimedia networks,
- Multimedia data encoding and compression,
- Coaxial and optical cable transmissions.

A course of Computer Aided Programming in Electronics, realized in cooperation with partners from Twente (Holland) and Sofia (Bulgaria) within a PHARE project, is also available for students. Also, there is *on course* a set of three learning modules: "Introduction into computer science", "Informational technologies" and "Computer and informational technologies applications", destined for a larger range of public (inclusive pre-university teachers, doctors, technicians, other specialization engineers etc.).

Until now, the offer is opened for graduates of electrical profile faculties that are currently working in communications domain. The requirement for being able to attend to the courses offered by CNODESC is, for the post graduate curses, to present a diploma from any technical university from Romania. For the continuous learning are intended specific obligations. The course graduates will be awarded with a certificate issued by TUCN, and for the post graduate program, a diploma that has the same statute as the ones that are achieved by following similar programs within the daily education.

The communication between different participants to DE (students, tutors, course administrators) is done by using the integrated communication environment developed by CTMED (ICE) that can be accessed from the CNODESC web page. This environment is used for writing, evaluation, testing, messaging, "virtual classrooms", for each course, where the

on-line professional information exchange between the tutor and the students or even between the students themselves can take place, exchange of graphic information (Whiteboard) and distance processing. There are in their final stage software packages for realizing WEB courses, as well as an Internet distance evaluation (examination) software for students.

4 The Bologna Process

4.1 Adaptation of a system based on two cycles

By the Declaration of Bologna (1999) the signatory states decided to work towards increasing competitiveness of European universities and established actions in view of creating the European Higher Education Area: adoption of a system with easily readable and comparable degrees; adoption of a system essentially based on cycles; establishment of a system of credits; promotion of mobility; promotion of European cooperation in quality assurance with a view to developing education particularly with regard to curricular development, inter-institutional cooperation, mobility schemes and integrated programs of study, training and research.

At the Technical University of Cluj-Napoca, in the base of the Law 288/24.06.2004, the educational process is reorganized in three cycles: bachelor, master and doctorate with the main domains and specializations, Tab.1.

Now, the elaboration of the new Educational Planes, according to the CNEA norms and recommendations it's being realized. A procedure has been developed, Fig.1, that will be the base of the new documents and that follows the next steps:

1. Graduate profile. – The society constituted by companies and institutions is the main client of the Technical University. It is necessary to know the "proprieties" that the University "product" (the graduate) must have in order to satisfy the clients' needs. In this relation intervenes also the Ministry of Education and Research that is the main financier of processes that will transform the "raw material" (high school graduates) into an engineer. The graduate must correspond to a work place anywhere in Europe and that is why is needed to know the requirements of this environment. The graduate profile is determined on the base of questionnaires applied to the industrial and economic environment for which an important contribution may have the professional organizations (e.g. The National Engineers Association).

Tab.1 The new Licensed domain and specialization

Faculty	Licensed Domain	Specialization
Faculty of Architecture and Urban Planning	**Architecture**	**Architecture**
Faculty of Automation and Computer Science	**Computers and information technology**	**Computers**
		Information Technology
	Engineering of automated systems	**Applied automation and informatics**
Faculty of Civil Engineering	**Civil engineering**	**Civil, industrial and agricultural constructions**
		Railways, roads and bridges
	Installations	**Installations for constructions**

		Installations and equipments for atmosphere protection
	Engineering and management	**Engineering and management in constructions**
Faculty of Electronics and Telecommunications	**Electronic and telecommunications engineering**	**Electronics and information engineering**
		Telecommunications
Faculty of Electrical Engineering	**Electrical engineering**	**General electrical engineering**
		Electrical actuations
		Metrology in electrical industry
		Electro-mechanics
	Energetic engineering	**Industrial energetic**
	Applied engineering science	**Medical engineering**
Faculty of Machine Building	**Industrial engineering**	**Technology of machine manufacturing**
		Production machines and systems
		Industrial design
	Engineering and management	**Industrial engineering and management**
	Applied	**Physics engineering**

	engineering science	
	Mecatronics and robotics	**Robotics**
Faculty of Mechanical Engineering	**Transportation engineering**	**Road motor vehicles**
	Mechanical engineering	**Machines and installations for agricultural and food industries**
		Thermal machines and equipments
		Precision mechanics and nanotechnologies
Faculty of Materials Science and Engineering	**Materials engineering**	**Materials science**
		Materials processing engineering
	Environmental engineering	**Engineering and environmental protection in industry**

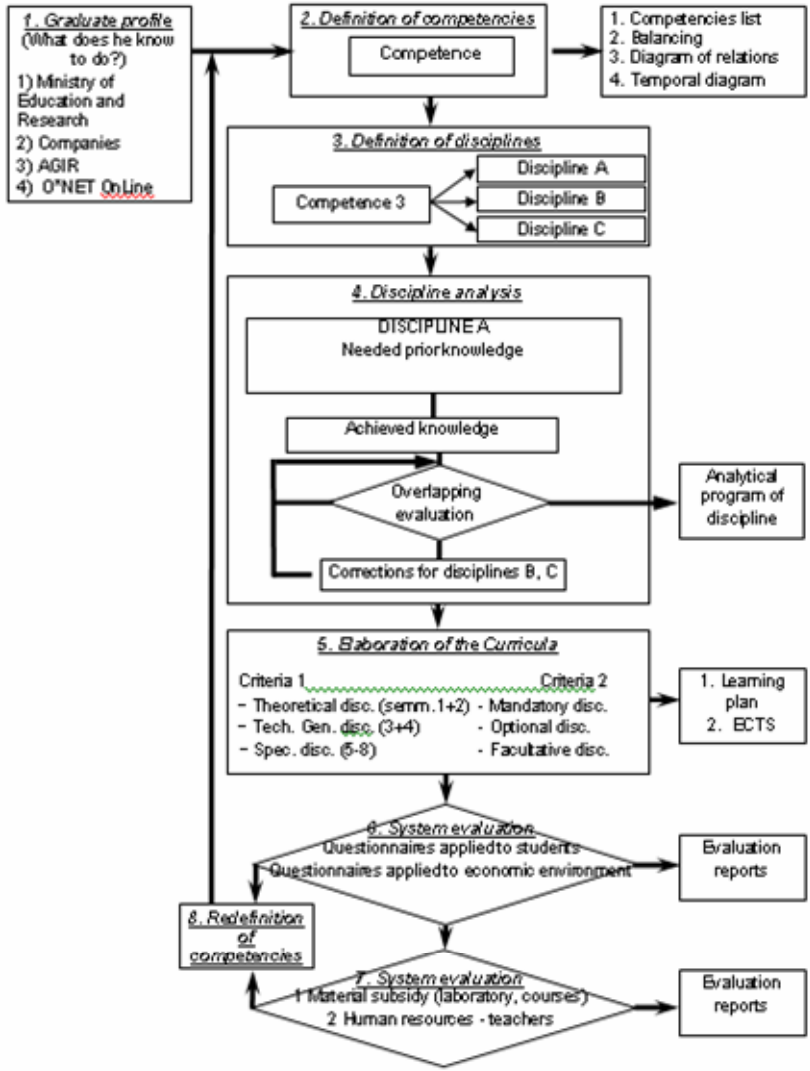


Fig.3 Development of curricula and disciplines

2. Determination of competencies – competencies of an engineer can be divided in specialty technical knowledge and skills and abilities that he must achieve during his studies. For example, a good engineer has to be able to communicate, written or spoken, with his superiors, co-workers and employees. Consequently, it is necessary for him to achieve specialty knowledge (mechanics, technology, machine-tools) and skills that will help him communicate. It is necessary to be established the following:
Competencies balance
Competencies ratio
Time spacing of knowledge achievement
3. Discipline definition – competencies are achieved during studies with the help of the disciplines "taught" by the teachers and by individual study. It is necessary to elaborate for each discipline of an analytical program a course and practical applications.
4. Discipline analysis – because for elaborating the analytical program is involved more than one teacher it is necessary to analyze each discipline in order to eliminate the possible overlapping.
5. Learning plan elaboration – disciplines are assembled into a learning plan that takes into account several restrictions, such as: the number of courses/week, the year of study etc. In principle, the disciplines are divided by two criteria:
- Criteria 1.
  - Fundamental disciplines
  - Engineering domain disciplines
  - Specialty engineering disciplines
- Criteria 2

- Mandatory disciplines
- Optional disciplines
- Facultative disciplines

6. External evaluation of the system – the functioning way is evaluated by the clients' point of view. With the help of questionnaires is evaluated the satisfaction of the "external clients" (companies, institutions) and of the "internal clients" (students).

7. Internal evaluation of the system – there are evaluated the conditions of system functioning, such as material subsidies and human resources capacity (teachers), in order to offer high quality educational services.

8. Competencies redefinition – the observed deviations during evaluations are corrected by modifying the competencies, this step helping to continuously improve the system functioning.

4.2 The credit system

At the Technical University of Cluj-Napoca the transferable credits system has been introduced since 1998, after applying a Tempus project in cooperation with the Technical University of Braunschweig, Germany. This system allows studies recognition and is not destined to achievement in order to recognize the studies during a lifetime.

Within the new learning plans are being accorded a number of 240 credits. Unlike 1998-2004, the new system takes into account the whole work of the student (course + practical activities + individual work). It has to be emphasized the credit awarding for practical activities and those for the license exam preparation.

4.3 Mobility promotion

It is assured by the International Relations Office (ORI) that represents an

organization structure of the university that has as aims the following:

• Development of international cooperation, both academically and scientifically, with governmental or non-governmental organizations, research centers, companies and foundations.
• Facilitation of inter-university exchange, at institutional level, both for teachers and students;
• Enhancement of the Cluj engineering school by dissemination of results obtained by its academic community;
• Attraction of a number as high as possible of foreign students within the formative programs organized by the university.

ORI's main activities are:

• Establishment of university partnerships with foreign economic organizations and private and governmental agencies which are able to offer research, teaching, study and practical programs, for the TUCN teachers and students.
• Aggregation to international academic organizations and/or scientific societies;
• Operative information of teachers, researchers and students towards academically and scientifically international cooperation opportunities;
• Organization of student and academic staff exchanges within in course international cooperation programs;
• Participations to international academic and/or scientific manifestations:

The University is aggregated to:

- European Universities Association – EUA (since 2000)
- The Alliance of Universities for Democracy – AUDEM (since 2001)

♦ Black Sea Universities Network – BSUN (since 2004)

At present there are on course 21 international research projects (four within the PC6 network), 11 institutional projects and are signed 25 cooperation agreements with foreign universities.

5. Quality assurance

The University board considers the quality assurance to be the most important internal engine for reform acceleration. The Department for Quality Assurance has been founded in 2001. During the first step (2001-2004) had been elaborated the first version of the Quality Manual and had been written the rules (procedures) for the most processes within the system.

Since 2004 the university Board adopted the Quality Management System according to SR EN ISO 9001 2001. During this step the Quality Management System had been redesigned for:

- Defining responsibilities of faculties, departments and services;
- Evaluating the activities of programs or institutions, including internal evaluation, external analysis, and students' participation and result publication;
- Creating a system of accreditation, certification and of procedures comparable at all levels.

The Quality System is formed of quality officials at faculty and department levels, as well as in services area (administration, personnel, financial, library etc.).

The System elaborates "tools" that, validated by the University board, are serving to the management of the system processes quality assurance and control.

For example, the Individual Evaluation System (SEI) is constituted by a number of 12 criteria that "measure" efficiently the activities developed by the teachers. SEI proposes to advise the teachers' efforts towards:

- A university based on knowledge and innovation by means of stimulating research and know-how transfer;
- A contractor university by stimulating the attraction of material resources needed to develop and realize assets;

The main criteria (Tab.2) taken into account, grouped by activities, are:

3 criteria for didactic activities C_02, C_07, C_08

7 criteria for research activities C_01, C_03, C_04, C_05, C_10

2 criteria for appreciation of university management activities C_09, C_12

Tab.2 Evaluation system criteria

C_01	Books published by international/national editors, with ISBN	C_07	Institutional projects
C_02	Courses, laboratory papers, project guides, exercise collections	C_08	Continuous education
C_03	Papers published in magazines	C_09	Material resources
C_04	Scientific papers	C_10	Institutional projects
C_05	Patents	C_11	PhD
C_06	Research grants	C_12	Organizational and social activities

SEI awards points for several activities, their total being the base for evaluation of:

- Management at faculty and department level;
- Awarding of merit grades and salaries;
- Material awarding of "the most valuable university staff".

The advantage of SEI is:

- A complete evaluation of the activities developed by teachers (didactic + research + management involvement) and keeping an acceptable ratio between activities;
- Promoting the excellence by awarding the obtained results and not the whole range of activities provided by the Function Record.

Other activities that are on course at present within the Department for Quality Assurance are:

- Elaboration of a new Quality Manual. The Quality Politics, the Rectors' Declaration regarding the Quality, the University Organization Chart, and the Department of Quality Assurance Organization Chart have been defined. The Processes Map, as well as the proper editing of the manual and procedures is on the way.
- Elaboration of teachers' and university managements' evaluation, made by students.

6. Interface with Economic Environment

The cooperation of our university with the economic environment follows several directions. In this respect, representatives from the economic sectors are involved to the level of the administration council of the university, as well as within the scientific committee responsible with the definition of the research strategy at institutional level.

A second line of cooperation with the external environment is through various networks of training and knowledge transfer. These networks include the university and associations of owners, chambers of commerce and industry. An example in this respect is the CERT network. The university runs specific

actions to collect information, to promote and to strengthen the links with the economic environment. They are organized through the Technology Transfer Office and Research Marketing Office. Examples of such actions are: technology transfer clubs, partnership for excellence, periodic contacts with companies for promotion of the university's offer, workshops.

To this, research groups from the university run various applied-research projects and consultancy for companies and institutions located in the region or at national or international levels.

The university is also involved or coordinates projects of the Regional Development Agency concerning to regional strategy development in areas including: economic competitiveness, research & innovation, human resource valorization, etc.

Another type of cooperation includes the support in infrastructure of consortia of companies for developing various specializations in the university. Cooperation is also extended under the form of cooperation protocols between the university and companies (usually large companies and multi-national companies in various fields of activity). The cooperation protocols cover aspects both on education and research.

MATERIALS SCIENCE AND ENGINEERING IN THE ACADEMIC TECHNICAL EDUCATIONAL SYSTEM

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The Technical University of Cluj-Napoca, Romania

The change of the economical and social conditions in our country after 1989 led to a rapid drop of options for the engineering technical specialties given the preconceived lack of perspective in the industry development.

But it is unconceivable, in the economical conditions of the market, the development of the Romanian society, without re-launching the industry on the new rules of competition, aiming at the competence of the realized products.

The conceiving and the making-up of machines, equipments, reliable and performing machineries, impose, first of all, the use of performing materials. These materials are made and used at the right place by the specialist called **"material engineer",** a specialty, a new profession, in the academic school and in the Romanian industry inspired by the technical educational systems in the western countries.

Throughout history new materials have been elaborated, and the old ones have been perfected. Their production and use have gone a long way that started with

rock, passed from bronze to iron, so that today it continues with the most sophisticated metallic, plastic, ceramic or composed materials, their development being the condition of progress existence. The greatest research funds are allotted, worldwide, to the science of materials; this science involves a great number of engineers and researchers and it assures the highest rate of come back of the invested sums.

Actually, the Program Framework of Research and Technological Development of the European Union also includes, at each edition, the studies and researches in the material domain amongst its main domains.

Why do things break? Why do materials have resistance? Why are some solid things more resistant than others? Why is steel tough and why is glass fragile? Why does wood chop? What do we actually refer to when we say "resistance", "toughness", and "fragility"? Why is rubber elastic? Are materials as resistant as we pretend them to be? How much can we develop the types of existent materials so that they can be more resistant? If the answer is affirmative, by what means could we make such materials and how would they look like? Why do some materials resist when used in very cold conditions? Why can other materials be used at very high temperatures? If we could actually produce better materials, from the quality point of view, the proper question is how and where could we use them?

Towards the end of his life, Faraday asked himself such questions, but he was not able to find answers and not even we could find them but a little while ago. Still, regarding the problems he raised, Faraday was long ahead the knowledge of his contemporaries, and years after, materials with their properties have remained little approached by science.

Here are only some simple questions to which only specialists from the domain of material engineering and science can answer.

The importance of material engineering consists in the fact that what we could obtain till now, technically, was limited by the low resistance of construction materials. Instead of our limit to this situation, we can try to understand why materials act in a certain way and especially we can notice more clearly the way they can be changed and improved. Therefore, we can try the making of some new and better materials, which have never existed before, this situation thus opening new horizons to those in industrial engineering.

The specialist in material science and engineering is directly involved in the fabrication, manufacture and rational use of metallic, ceramic plastic or composed materials of high performance, of the materials for high tech: car construction, nuclear technique, aviation technique, electronics and electrotechnique, information technology. The material science and engineering graduate must become a specialist with a large area of interdisciplinary knowledge, capable of performance in any area of engineering activity, competent in the selection, projection, elaboration and manufacturing of materials, being accessible in the most complex laboratories or industrial units. The consulting, expertise and analysis activities in the extremely demanded field of materials are well paid and they create, for the material specialist, the premises of organizing private offices.

Any small, middle or large company, which produces pieces, parts, installations, gears or machineries, needs specialists in the material science and engineering. Any producer or businessman also needs such specialists. The concurrent market economy implies competition, quality, diversity, as low as possible costs, that is progress, and this

thing requires more and more specialists in material science and engineering who can work in the conceiving activity, in control, consulting and research laboratories.

In the conceiving and making-up of a product, the problem of materials must be necessarily correlated with the manufacturing and exploitation processes. That is why a good engineer must have a complex training. The material science and engineering must be capable of making materials whose properties can determine the performances and reliability of the product. The great spectrum of qualifications and the diversity of the materials led to an interdisciplinary approach between material engineering and science. The place that material engineering takes in the technical system of making a product is given by the elements of the interdependency presented in the below chart. The factors in the chart reveal the interdependency between the material and its qualities on the one hand and the way of manufacturing, the shape of the piece and its processing on the other hand, aiming at assuring the functional role imposed to the piece or the industrial process.

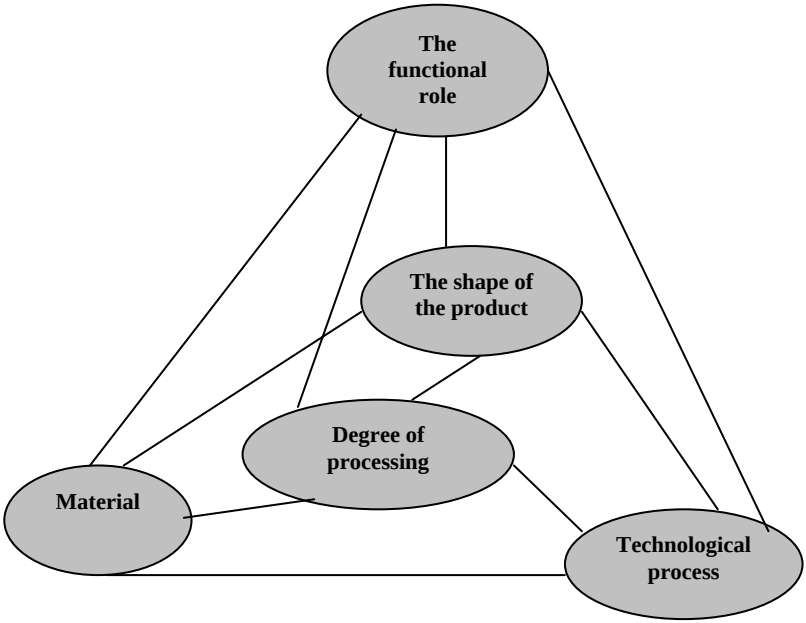

Fig. 1The interdependency between the factors which determine the functional role of a product

In the conditions of the market economy, the intelligence and the professional competence constitute advantages which are capable to propel the engineer to the highest steps of society. Furthermore, the competition in the selection, projection and elaboration of materials opens the gates to the evolution of the activity in the most complex laboratories or industrial firms in our country, in Europe and worldwide. The examination and analyses offices in the domain of materials will also be demanded; they will be created by the future specialists.

Where will the future materials specialist work?

- In the conceiving and technological designing fields regarding the selection of materials
- In the research institutions and laboratories in the domain of conceiving, designing and elaboration of special materials intended to high technique;
- In economical units with materials profile and material processing;
- In the laboratories of materials and products testing;
- In marketing offices, as technical advisers regarding materials' import and export;
- In the academic technical education for the training of new specialists in materials' domain
- In the consulting and examination private offices.

The Materials Science and Engineering Faculties give the possibility of training specialists in engineering materials domain, being equipped with laboratories with modern devices, having teachers with high scientific knowledge and the tradition of the Schools of Materials recognized in the country and abroad, some of them being connected to the world research in the domain of materials even from the very beginning. After graduating the faculty the possibility of better qualifications is given by the cycle of master's degree and doctorate.

Unfortunately, the Materials Science and Engineering has not found, yet, its place in society. Everybody recognizes and accepts the importance of materials in all industry's domains, and in domains close to us, such as health or life' quality. Nevertheless, the materials science and engineering is not regarded as a domain or a discipline, thus neglecting its importance. It is easy to check out this thing: ask the members of your family or even weirder, managers or specialists from the industrial environment, if they know what the materials science and engineering is

and you will realize that you will get funny answers, such as "I don't know" to "is it by chance a domain of engineering which calculates the structures?". Ask the same persons about composites or about polymers and you will be more surprised by the answer. The public and unfortunately not even the industrial managers are not correctly informed about the materials science and engineering. They are accustomed with classical sciences (physics, chemistry, biology, geography, mathematics) and modern technologies (computers, aeronautics, communications, automatics, cars building etc). But today, their life depends more of materials science than of other disciplines.

Good designers are those specialists which have great knowledge in materials science and engineering domain. The first negative consequence of this fact is the insufficient number of intellectually gifted students, guided to materials science and engineering. This fact produces a great lack of engineers and researchers specialized in materials engineering which could satisfy the demands of industrial environment. We must not forget that among the problems that a young engineer will have to resolve in industry are to be mentioned the ones regarding the designing errors and the incorrect choice of materials.

There are no doubts so far, both in the past and nowadays, concerning the importance of expert knowledge in materials, knowing that today, as it was a thousand years ago, the ones who had the materials also dominated the world. In the past, this led to the superiority of guns, and today leads to the superiority in equipment, devices, performing products, information and communication technology.

Years ago, the decisional political factors in Japan established that three domains are fundamental to the future development of the country: storing, processing and transferring information, biotechnology and technologies of obtaining new and advanced materials for all industries. Following this decision, the most significant human resources in research, development and financial resources have been guided to these domains. In USA and in Europe, this thing was achieved much later, which explains the difference between our development and the one of Japan, especially in the domain of new materials.

The connection between the materials science and engineering and the history of human development is more obvious in the different ages, even considering their names: Stone Age, Bronze age, Iron age and by the types of settlements, from the very beginning till today, being determined by the materials' availability and the ability of humans to use them to their advantage. This ability depended on the skill to use fire whose effect is used today in order to modify the materials' properties during their fabrication. This was the key which opened the door to arts and technology and let us become farmers, hunters, warriors, builders, specialists in communication techniques, I.T., etc.

We can mention the main professional abilities that the future specialist engineers in materials' domain have to achieve:

- Materials selection, designing, elaboration and characterization;
- The choice of good technological options according to the conditions of productivity, cost, environment protection (clean technologies);

- The designing of technological processes of processing different categories of materials of industrial use: metallic, polymeric, ceramics, composites;
- The designing, the exploitation and the maintenance of materials processing equipment;
- The leading and the control of technological processes of elaboration and fabrication of different categories of materials for the industrial use;
- The organization of ability and examinations studies in the domain of materials and of their processing.

The materials science and engineering domain has to find its own identity, different from the mechanical engineering, the industrial engineering or even the metallurgical one. The new academic curricula (education plans, analytical programs, disciplines modules) which are being designed nowadays at the same time with the implementation of Bologna's Agreement must answer to least two tasks: firstly, to assure the creation of flexible professional abilities and secondly, to raise the attraction of the domain, which means the confidence of the future candidates in the employment potential after graduating, offering possibilities of perfecting themselves with the master's degree and doctorate.

In conclusion, the engineer-specialist in materials should become an occupation with a high degree of mobility and flexibility, with certain possibilities of change and easy to adapt within different professional conditions, according to the demands of the working place. No engineer-specialist in materials should be unemployed.

"LUCIAN BLAGA" UNIVERSITY IN SIBIU: SPECIFIC FEATURES OF THE BOLOGNA AGREEMENT

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1. From Sorbonne to Bergen

On May, 25 1998, at Sorbonne, the ministers responsible for higher education from France, Germany, Italy and Great Britain signed a Common Declaration concerning the European Higher Educational System. The Declaration was based on the idea that a united Europe should not only represent euro currency, but a Europe of knowledge. Therefore the intellectual, cultural, social and technical dimensions should be developed and the universities should have a major role in this development. The mobility of the students should be encouraged for a better mobility in the European space of the Higher Education graduates and for getting a better cultural knowledge from different European areas.

To ease the free circulation from one university to another, a chart/ scheme to validate the studies in other universities and to use the credits obtained during one semester was necessary. The recognition of the credits obtained in another university is based on agreements and mutual trust between the universities.

On June, 19 1999, the Declaration of Bologna was signed; it is better known since it was signed by the Ministers of Education from 31 European countries and it concerned the foundation of an European Space of Higher Education including:

- the setting up of a system of comparable titles;
- the setting up of a system based on two major cycles of study (undergraduate and master) and a third cycle of doctoral studies;
- the promotion of the mobilities of the persons involved in the Higher Educational System
- the promotion of the European cultural aspects in the Higher Educational System;
- the establishment of a system of credits to promote the mobility of students, teachers and researchers, as well as the lifelong learning;
- the promotion of the European co-operation in order to assure the quality to develop criteria and comparable methodologies, a required condition to increase the confidence in the system of credits.

The Declaration of Bologna led to a series of revolutionary changes, both in the legislation concerning the Higher Educational System in all European countries, and in the way of thinking of those involved in the didactic process. Thus, nowadays, these series of changes is known as the Bologna Agreement.

Two years after the Declaration of Bologna and three years after the Declaration of Sorbonne, the Ministers of Education from the European countries met in Prague where they reasserted their decision to continue the process in order to attain the foundation of the European Space of Higher Education until 2010, an objective that should be linked with

the idea of the European Union that the European economy should become an economy of knowledge. For this reason the additional steps were established in order to achieve the six objectives from the Bologna Agreement. Moreover, they agreed upon the necessity of the continuous study, the establishment of partnerships between the universities as well as the attraction of the European Higher Education in comparison to the United States.

After the meeting in Prague in May 2001, the Ministers of Education signed a statement in September 2003, in Berlin, establishing the intermediate objectives which should be analysed by the European countries until 2005. These are:

1. The development at the institutional, national and European levels of a system to assure quality, as well as the development of criteria and methodologies mutually accepted. This system establishes the premises to obtain confidence in a system of transferable credits.
2. The adaptation of a legislation concerning the structure of Higher Education in a system with cycles of studies and its establishment.
3. The establishment of systems of credits at a national level based on the European Credit Transfer System (E.C.T.S.) to facilitate the mobility of the students.
4. The endorsement of the member countries of a system with academic comparable titles (professions) and the granting of a Diploma Supplement to the graduates that would lead to an easier recognition of the diplomas in the European space.

The Ministers of Education from the 40 European countries will meet in Bergen, in May 2005 in order to relate the progresses in the Bologna Agreement after the meeting in Berlin and to establish the directions of action until 2010.

2. Credit Transfer System

The European Credit Transfer System was initially a test project financed by the Erasmus Programme in order to create a scheme to enable the mobility of the students. One of the main purposes of this programme was the promotion of an academic recognition in the European Union and among the member countries of the European Free Trade Association (E.F.T.A.).
E.C.T.S. is a decentralized system based on the principle of mutual trust between the partner institutions. The E.C.T.S. rules are based on:

- **information** about the taught courses, if possible about the curricula
- **institutional agreements** between the two universities involved in the exchange
- the use of the **credit points** to indicate the quantity of work imposed to the student. This quantity of work done by the student implies the average time spent by the student for courses, practical papers, individual study as well as the preparation for exams every week. This is shown by granting 30 credit points each semester, that is to say 60 points each year.

The "Lucian Blaga" University in Sibiu endorsed regulations regarding the organization of the educational process using the system of transferable credits. These regulations form the organizational frame for the entire university, and the different faculties choose, in this frame, to add different options.
Excerpt from Regulations Concerning the Use of Credit Transfer System

General rules

- the disciplines from the syllabus have identification codes in order to define univocal parameters (faculty, formative category, semester, type of discipline, identification code from the syllabus).
- the minimum number of credit points for the disciplines in one year is 60.
- a student may have more points than the minimum number from optional disciplines and / or freely chosen.
- Generally, the credit points are equally distributed to each semester (30 c.p.). Differences up to 5 are allowed each semester. Fractional numbers are not permitted in the distribution of c.p.
- the number of c.p. is indivisible. It is forbidden to give partial c.p. for an activity part of the disciplines.
- the minimum number of c.p. given for a discipline is 3. Exceptionally, the faculty can give 2 c.p. for no more than 2 disciplines.
- to get the credit points given for a discipline it is necessary to promote the discipline. The minimum grade to promote is 5.
- the promoted disciplines are recognized under all circumstances, except expulsion
- at the beginning of every academic year the student is asked to sign a Learning Agreement where the chosen disciplines are specified. These disciplines need minimum 60 c.p., including the repeated courses. The agreement cannot be cancelled during the academic year.

Rules to choose (RC)

- the rules to choose the trajectory (RCT) occur at the beginning of a cycle when the ramifications of the teaching process arise.
- The rules to choose the option (RCO) act at the beginning of the academic year, when the optional disciplines and / or free courses are chosen.

Intermediate rules (IR)

These rules act at the passage between two academic years or two cycles.

IR1: The passage from one academic year to another is conditioned by the accumulation of at least 40 c.p. Otherwise the student would be expelled…The 40 c.p. can be obtained also from the remaining courses from the previous years.

IR2: The passage from 1st cycle to 2nd cycle is conditioned by the accumulation of 120 c.p. given for 1st year, otherwise the student will be expelled or advised to take up a college.

IR3: The credit points given for the 1st cycle (the first 2 years) should be taken in maximum 3 years.

IR4: The credit points for the 2nd cycle (the following 3 years) should be obtained in maximum 4 years, without the University Degree and the Diploma Paper. Otherwise the student would be expelled or advised to take up another educational form.

Remaking rules (RR)

RR1: when a discipline is not promoted or when the student asks for increasing his mark, the discipline with all its activities should be remade.

Explanatory notes:

- there is no repetition for the final assessment (exam) of a discipline

- partial assessments (test papers, homework, etc) given during one semester can be remade, to increase the mark, only once during the first week from the three weeks of session at the end of the semester.

RR2: the final assessments (exams) of the disciplines from one academic year can be rescheduled in 2 weeks in September only under the following circumstances:

- if the student was absent at the final assessments for which he asked to be rescheduled
- if the student got 40 c.p. in the current year, according to IR1
- if at the discipline for which the reschedule is asked the student got minimum 2/3 at the partial assessments for the work of one semester

RR3: the disciplines can be repeated two times, once normally and once exceptionally in order to promote or / and to increase the mark. The exceptional remaking of a discipline can be permitted at most two times during the schooling period

Rules to transfer the credits (RTC)

RTC1: the maximum number of transferable credit points in E.C.T.S. system is 30 during the whole schooling period;

The way credits are granted

The basic elements concerning the way to grant credits were included in the methodology presented in the Senate and in the previous rules. Essentially these are:

Stipulation	Value
The minimum credit for one discipline	3
The minimum credit accumulated during one year	60
The minimum credit accumulated during one semester	30 ± 5
The credit for annual practice	3
The credit for the university degree	10
The credit for the project of diploma	20
The transferable credit	Would be defined according to ECTS

The correspondence with the actual time and the granting of differential importance among the disciplines is up to the faculties. The calculation of the credits is made according to the following table.

Actual Time Scheduled			Factor of reduction of actual time	Factor of importance	Given credit (F_s scale factor)
Time	Duration T	Activities	F_r	F_i	
Week -direct contact	28 - 32	Course Seminar Laboratory Project	F_r	F_i	$C_c = T_{actual} * F_s * F_r * F_i$ $C_s = T_{actual} * F_s * F_r * F_i$ $C_L = T_{actual} * F_s * F_r * F_i$ $C_P = T_{actual} * F_s * F_r * F_i$
-individual activities	12 - 8	Course themes	F_r	F_i	$C_{TC} = T_{actual} * F_s * F_r * F_i$
Total week	40				C_{week}
Total semester	14	560			$C_{semester}$

14 weeks					

One can notice that these are standard regulations for the students following a specialization with a duration of 5 years. For these specializations, the studies are structured on two cycles of two, respectively three years. Most of the other specializations have a duration of 4 years, structured on two cycles of two years each. At the latter the credit points granted for the 1st cycle had to be obtained up to the end of these two years. Thus, if the student can promote from 1st cycle to 2nd cycle with only 40 c.p. from the over-all 60 c.p., the promotion to the 3rd year is permitted only by gaining all the 120 c.p.

At the specializations with a duration of 5 years, such as those regarding engineering, the student can promote from one year to another by obtaining the 40 c.p. from the over-all 60 c.p. given that year. Therefore, he / she is allowed to promote to 3rd year with 40 c.p. missing (20 c.p. from the 1st year and 20 from the 2nd year). In order to promote the 3rd year the student must get all the 40 c.p. missing from 1st and 2nd years and at least 40 c.p. from the over-all 60 c.p. given for the 3rd year. Moreover, at the end of the 5th year the student can have missing credits from the 5th year and 40 c.p. from the 3rd and the 4th years.

Unfortunately, even though this organizational frame is in accordance with ECTS, its application showed some major problems:

- Due to the fact that the number of the students with missing c.p. is rather high, the conditioning rules were no longer applied. Therefore, the students could follow a discipline without having the knowledge required to promote the previous discipline. This led the teaching staff to major

difficulties in explaining some concepts without a fundamental knowledge on which to build.

- The recovery of the activities corresponding to the missing c.p. is formally done because of the serious problems related to the time-table, which cannot be made in order to allow the students from a superior year to repeat the laboratory activities with those who follow them normally. Thus, the repetition, in fact, means just another examination.
- Without the pressure of failure, some students can take up an exam even 15 times, every time being unprepared as they hope the teacher to get finally bored (because he is paid only for one examination) and to give them a passing grade. This situation creates a serious psychological pressure for the teaching staff who wants to impose a certain level of knowledge.

All these problems, together with the attempt to unify credit transfer system for all the specializations impose the modification of the regulations. Therefore, the student will promote the n year getting 40 c.p., while the promotion of the n+1 year is allowed only if **all** the c.p. from the n year are obtained, without any difference between the two cycles. Nevertheless these cycles will disappear from 2005, while passing to the scheme 3+2+3 (or 4+1+3).

3. The Quality Management System

The quality management systems are well-informed systems. The recording of the whole process of obtaining quality in documents offers a high level of responsibility for all the

persons involved in the process. Here the documentation presents several functions:

- To facilitate the communication of the intentions of the university leadership.
- To describe coherently and unitarily the processes that take place in the institution.
- To register the experience from the university, the treasure "good traditions" as a fundament to similar present and future activities, as well as basis for training the staff.
- To supply objective evidence concerning the process of the stipulated processes, as well as to meet the demands of the clients and other involved parts of the institution
- To contribute to the creation of transparency and development of confidence in the capacity of the university to normally function
- To set up a basis to assess the activities, to analyse the performances and to continually improve the processes of learning, teaching and research.

The elaboration of the documentation does not represent a goal of its own, but a process that adds value to the activities of the university. Therefore, before the elaboration of a document it is desirable to analyse its necessity and opportunity, the efficiency for the institution and its activities. Thus the proportion and structure of the documentation is different from one university to another.

The quality management system from a high educational establishment should not be assimilated with the documentation of this system. Even if the university developed

a rich well-structured documentation, this does not imply the fact that it presents an efficient quality system. Therefore, the structure of the documentation after a pre-established pattern, before the projection and introduction of the quality system represents a mistake that can lead to a bureaucratic approach of the quality management in the university. In this case, the funds spent for the elaboration of the documents are not reflected by the improvement of the processes of learning, teaching and research.

It must be stressed the fact that it is not the documentation which leads the processes, but these processes require the documentation. Thus, the stage of identification, description and analyse of the processes can be the best time leading to the end of the needed documentation for the quality management system.

The structure of the documentation for quality and its contents depend on the pattern chosen by the institution of higher education for the quality management system. Yet, as it was said before, a quality management system which is not documented cannot achieve the functions for which it was built.

The quality manual represents a document which synthetically presents the way one university had structured and organized the processes and activities at an internal and external level in order to meet the demands of the quality function. In this situation, the quality manual should present: the quality policy, the objectives and commitments of the university concerning quality, the organized structure and the responsibilities of different functional entities in order to realize and improve quality, the purpose and the field of

applying the quality management system (the fields of the institution involved), the general principles and rules which should be observed by all the staff in order to meet the demands of the quality management system, the structure of the documentation of the quality management system and the entry way, the references to inferior documents (procedures, documents describing the processes, documents regarding the produce, recordings of quality).
Being a synthetic document, internally used to maintain and continually improve the quality system as well as externally used, the quality manual is normally structured on chapters following the demands from the pattern chosen for the quality management system.

4. Specific procedures to assess the quality of the didactic process

The assessment of the quality of the didactic process is an essential requirement in order to achieve the objectives imposed at the European level. Among the institutional measures to assess quality the most important should be the feedback of the ones involved in the process. The student is the major beneficiary of the didactic process and therefore finding out his / her sincere opinion about the didactic process is imperatively necessary.

An experiment was undertaken at the Engineering Faculty of our University in order to find out the opinion of all the students about the didactic activities during the second semester of the previous academic year. The action was coordinated by the Dean of the Faculty and it was conducted

by some teachers from the teaching staff. The students were provided with the following questionnaires and were asked to fill them in. All the measures were taken to be certain that the students were alone in the classrooms when they filled them in.

Every student had to fill in a questionnaire for each discipline from the second semester of the previous year and therefore the handing out of the questionnaires took several days. They were codified and introduced into the computer in a certain manner to make it impossible for those who introduced the data to know the disciplines and the teachers concerned. Then the results were centralised for every discipline and teacher and the results were delivered to the departmental heads to be analysed. He / she would talk to every teacher separately in order to assure the secret of the results.

Processing the data was a titanic work because of the 10.000 questionnaires which had to be introduced. In order to generalize this method to other faculties, the department responsible for assuring quality modified the size of the questionnaire to make it possible to be scanned. A series of grievances came from the students who wanted to have access to the results as they were the ones who expressed their opinion. Thus questionnaires will be distributed with the help of the student associations at the university level. Moreover, the students will be provided with a synthesis of the results.

QUESTIONNAIRE

The leadership of "Lucian Blaga" University in Sibiu wishes to know the opinion of the students regarding the didactic activities taking place in the faculty. Please fill in the following questionnaire using one of these assessment values:

1. Totally against 2. Against 3. Neutral /Medium 4. For 5. Totally for

You should mark the most suitable answer (one answer for each question).

Discipline……
……

Teacher
……
……

▪

OBJECTIVE 1. The opinion of the students about the discipline		
1.	The discipline played an important role in improving my professional knowledge.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
2.	The volume of work was too high.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
3.	The theoretical part of the course was doubled by laboratory activity, seminar, and project.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
4.	The method of teaching permitted a good understanding of the discipline.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
5.	The bibliography was easy to find.	1 2 3 4 5

		☐ ☐ ☐ ☐ ☐
6.	The documentation given and / or the bibliography were/was of a good quality, useful and updated.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
7.	The over-all assessment of the discipline (**choose a mark from 1 to 10)**.	☐☐
OBJECTIVE 2. The opinion of the students about the teacher		
8.	The teacher showed a good knowledge of the discipline to teach.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
9.	The course was well-structured and clearly presented.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
10.	The teacher encouraged the interest of the students for the discipline.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
11.	The teacher was responsive to discuss the problems involved by the discipline.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
12.	The teacher efficiently used the time.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
13.	I would like to take up another course of this teacher.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
14.	The over-all assessment of the teacher (**choose a mark from 1 to 10**).	☐☐
OBJECTIVE 3. The opinion of the students about the professional ethics of the teacher		
15.	The method of assessment was objective and the grade was correct.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐
16.	The exam / the viva voice examination was promoted only on professional criteria.	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐

17.	The presence of the teacher at the course:	□1 under 50%	□2 50 – 75%	□3 76 – 99%	□4 100%
18.	The presence of the teacher at the seminar, laboratory and project was:	□1 under 50%	□2 50 – 75%	□3 76 – 99%	□4 100%

COMMENTS regarding other aspects of the professional ethics of the teacher: behaviour; honesty; the demand or acceptance of bribe, material goods and other advantages etc.

QUESTIONS OF CLASSIFICATION

19. My mark at the final assessment was □1 under 5 □2 5 – 6 □3 7 – 8 □4 9 – 10	**20**. My own assessment about the knowledge of this discipline □1 under 5 □2 5 – 6 □3 7 – 8 □4 9 – 10

21. My annual average mark of the previous year □1 5,00 – 6,00 □2 6,01 – 7,00 □3 7,01 – 8,00 □4 8,01 – 9,00 □5 9,01 – 10

22. My presence at the course was □1 0% □2 1 – 25% □3 26 – 50% □4 51 – 75% □5 76 – 100%

OTHER COMMENTS: Point out any other aspect regarding the discipline or the teacher that was not suggested and which is considered to be relevant.

**THE OPINION OF THE STUDENTS ABOUT
THE DISCIPLINE AND THE TEACHER– 1st year**

Questionnaire with the frequency of the answers
Academic year 2003 / 04 2nd semester
Evaluation criteria **1.Totally against 2. Against 3. Neutral /Medium 4. For 5. Totally for**

OBJECTIVE 1. The opinion of the students about the discipline		***165 answers***					
	Values according to the accepted criteria / frequencies	**null**	**1**	**2**	**3**	**4**	**5**
1.	The discipline played an important role in improving my professional knowledge.	0%	1%	7%	13%	48%	32%
2.	The volume of work was too high.	1%	1%	4%	33%	36%	25%
3.	The theoretical part of the course was doubled by laboratory activity, seminar, and project.	0%	1%	4%	19%	39%	36%
4.	The method of teaching permitted a good understanding of the discipline.	0%	4%	8%	16%	37%	35%
5.	The bibliography was easy to find.	0%	0%	3%	22%	40%	35%
6.	The documentation given and / or the bibliography were of a good quality, useful and updated.	1%	1%	4%	21%	38%	35%

7.	The over-all assessment of the discipline **(choose a mark from 1 to 10)**	**null**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
		3%	0%	0%	0%	1%	2%	4%	14%	21%	34%	22%

OBJECTIVE 2. The opinion of the students about the teacher

	Values according to the accepted criteria / frequencies	null	1	2	3	4	5
8	The teacher showed a good knowledge of the discipline to teach.	1%	1%	0%	4%	19%	76%
9	The course was well-structured and clearly presented.	1%	1%	8%	15%	39%	37%
10	The teacher encouraged the interest of the students for the discipline.	1%	1%	14%	21%	41%	22%
11	The teacher was responsive to discuss the problems involved by the discipline.	1%	1%	7%	17%	38%	36%
12	The teacher efficiently used the time.	1%	3%	5%	13%	39%	39%
13	I would like to take up another course of this teacher.	3%	10%	8%	22%	20%	37%

		null	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
14	The over-all assessment of the teacher (**choose a mark from 1 to 10**).	2%	1%	0%	0%	0%	4%	4%	7%	19%	25%	38%

OBJECTIVE 3. The opinion of the students about the professional ethics of the teacher

	Values according to the accepted criteria / frequencies	null	1	2	3	4	5
15.	The method of assessment was objective and the grade was correct.	1%	2%	6%	10%	33%	48%
16.	The exam / the viva voice examination were promoted only on professional criteria.	2%	1%	5%	15%	28%	49%

17.	The presence of the teacher at the course was:	**without answer**	**under 50%**	**50 – 75%**	**76 – 99%**	**100%**
		2%	2%	2%	28%	65%
18.	The presence of the teacher at the seminar, laboratory, project was:	**without answer**	**under 50%**	**50 – 75%**	**76 – 99%**	**100%**
		1%	1%	2%	18%	78%

QUESTIONS OF CLASSIFICATION

	Values according to the criteria accepted / frequencies	Without answer.	under 5	5 – 6	7 – 8	9 – 10
19.	My mark at the final assessment was	0%	12%	20%	39%	28%
20.	My own assessment about the knowledge of this discipline	0%	6%	20%	47%	27%

		Without answer	5,00 6,00	6,01 7,00	7,01 8,00	8,01 9,00	9,01 – 10
21.	My annual average mark of the previous year	8%	6%	12%	34%	30%	10%
		Without answer	**0%**	**1 – 25%**	**26 – 50%**	**51 – 75%**	**76 – 100%**
22.	My presence at the course was	0%	1%	3%	5%	24%	68%

Table with the modal values (M) and arithmetic media (Ma) for 1st year 2003/04 2nd semester and for the code Xxxxx

	a1	a2	a3	a4	a5	a6	a7
M 1st year	4	4	4	4	5	4	9
M xxxxx	4.00	3.00	4.00	4.00	5.00	4.00	9.00
Ma 1st year	4.04	3.96	3.81	3.32	4.11	3.94	8.13
Ma xxxxx	4.18	3.7	4.09	4.24	4.18	4.21	8.72
M +/-	0.00	-1.00	0.00	0.00	0.00	0.000	0.00
Ma +/-	0.14	-0.26	0.28	0.92	0.08	0.28	0.59

b8	b9	b10	b11	b12	b13	b14
5	4	3	4	4	3	9
5.00	4.00	4.00	5.00	5.00	5.00	10.00
4.70	3.40	3.06	3.49	3.77	2.87	7.77
4.76	4.36	4.12	4.3	4.27	3.94	8.97

0.00	0.00	1.00	1.00	1.00	2.00	1.000
0.06	0.96	1.06	0.81	0.51	0.51	1.20

c15	c16	c17	c18	d19	d20	d21	d22
5	5	4	4	3	3	3	5
5.00	5.00	4.00	4.00	3.00	3.00	3.00	5.00
3.77	3.57	3.43	3.68	2.62	2.85	3.02	4.47
4.38	4.45	3.75	3.81	3.39	3.42	3.37	4.67
0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
0.61	0.88	0.32	0.13	0.78	0.57	0.35	0.20

The place of the discipline and of the teacher (code xxxxx) during 1st year, according to the Ma of the answers at every question

Code	The question in the questionnaire	Place	Var +/-
a1	The discipline played an important role in improving my professional knowledge.	1	0.42
a2	The volume of work was too high.	3	0.88
a3	The theoretical part of the course was doubled by laboratory, seminar, and project.	3	0.79
a5	The bibliography was easy to find.	1	0.21
a6	The documentation given and / or the bibliography were of a good quality, useful and updated.	1	0.48
a7	The over-all assessment of the discipline.	2	0.82
b8	The teacher showed a good knowledge of the discipline to teach.	1	0.27
b9	The course was well-structured and clearly presented.	3	1.33
b10	The teacher encouraged the interest of the students for the discipline.	2	1.27
b11	The teacher was responsive to discuss the problems involved by the discipline.	2	1.18
b12	The teacher efficiently used the time.	1	0.64
b13	I would like to take up another course of this teacher.		

		3	1.73
b14	The over-all assessment of the teacher.	3	1.85
c15	The method of assessment was objective and the grade was correct.	3	1.21
c16	The exam / the viva voice examination were promoted only on professional criteria.	3	1.36
c17	The presence of the teacher at the course:	2	0.64
c18	The presence of the teacher at the seminar, laboratory, project:	2	0.42
d19	My mark at the final assessment was:	1	1.09
d20	My own assessment about the knowledge of this discipline:	1	0.97
d21	My annual average mark of the previous year:	2	0.24
d22	Rs was according to	1	0.24

Explanatory notes for the terms:
M – the modal value (mode) – the most frequent answer; Ma – the arithmetic media of all answers
Ex. al – 1st place – means that the discipline xxxxx is on the first rank from the five assessed during 1st year 2nd semester
var +/- - the difference between the Ma of the discipline ranked first and the Ma of the discipline ranked last

For every discipline and every item in the questionnaire, the average of the discipline and the trend are given, as well as the values of the average and the trend for all the disciplines taught at that specialization during that year. Furthermore, a rank is established on every item, the teacher being provided with a rank together with the value of the maximum difference in order to analyse the relevance of the criterion.

5. Conclusion

The Bologna Agreement must be continued even if it is a delicate matter for many teachers, especially concerning the way of thinking and we hope that the role of the students as actors in the educational system will become more evident in time.