

A case study: the way of the Romanian Agency ARACIS to the authorization to award EUR-ACE Label

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Abstract

After a brief description of the engineering education in Romania, the paper presents the Romanian system of quality assurance and accreditation in higher education which is, under the basis of the Law 871/2006, under the responsibility of ARACIS (Agentia Romana pentru Asigurarea Calitatii in Invatamantul Superior – Romanian Agency for Quality Assurance in Higher Education).

ARACIS is a *general* agency, covering all fields of higher education and having two strands: *quality assurance and accreditation*.

The accreditation of engineering programmes by ARACIS is based both on general criteria, common to the entire higher education system, and specific criteria, set by two Engineering Sciences Committees.

ARACIS was partner in the EU-funded project called EUR-ACE SPREAD, and its participation in this project is fully documented in the paper.

In October 2010, ARACIS applied to ENAEE for authorization to award EUR-ACE Label, thus fulfilling an objective set by the EUR-ACE SPREAD project for Romania. A final and consistent part of the paper is devoted to the presentation of actions undertaken since then by both ARACIS and ENAEE to lead to the acceptance of the application in September 2012, by which ARACIS became the eight agency authorized to award EUR-ACE label.

1. Engineering Education in Romania

In the academic year 2012-2013 there are 109 universities in Romania, from which 56 public universities, 37 private accredited universities and 16 private universities with provisional authorization. In the same year, 41 higher education institutions offer engineering programmes (35 public and 6 private), located in 22 centres, well distributed across the country, as illustrated in the Fig. 1. Among the 35 public institutions, there are **9 technical universities** and 5 comprehensive universities with engineering programmes in predominance.

A “*nomenclator*” of specializations in the first cycle degree approved for 2012-2013 by the government, listed **25 engineering fields** (civil engineering, mechanical engineering, electrical engineering, chemical engineering etc) and **144 specializations**.

Before the implementation of the Bologna process in Romania, which occurred in the academic year 2005-2006, the engineering education system in Romania was a traditional “*continental*” or “*binary*” system, like in the vast majority of European countries, with two parallel programmes:

- a long (five-year) programme aimed at educating graduates with extensive knowledge and understanding of mathematics, science and engineering; the degree of “*Inginer Diplomat*” conferred by the long programme was considered equivalent to the Master degree in the Anglo-Saxon (two-tier) system.
- a short (three-year) programme, with curriculum oriented toward practice; the degree of “*Inginer colegiu*” conferred by the short programme was considered to be equivalent to a BSc degree in the Anglo-Saxon system.

The implementation of the Bologna process in Romania was based on the Law 288/2004.

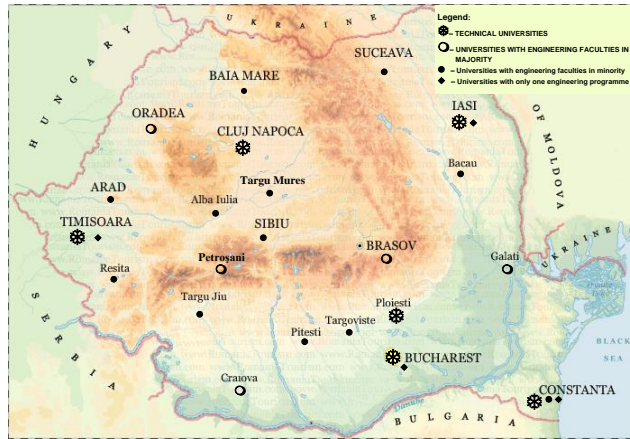


Figure 1: Distribution of universities offering engineering education throughout Romania in the academic year 2012-2013

The main provisions of the Law, relevant for engineering education, are the following ones:

- university studies in Romania are organized in three cycles;
- the first cycle, with a duration of 3-4 years (180-240 ECTS Credits) is called “*Licenta*” (synonymous with “Licence” in French). The qualification level acquired by graduates from the first cycle should be sufficient to assure employability. *The Law stipulates that for engineering education the first cycle is of 4 years duration* 240 ECTS credits);
- the second cycle, with a duration of 1-2 years (60-120 ECTS Credits), is called “Master”. The **cumulative duration** of the first cycle (licence) plus the second cycle (Master) should correspond to **at least 300 ECTS** or 5 years;
- the third cycle corresponds to *doctorate studies* having, normally, a duration of 3 years;
- the existing short, 3-year programmes, have to be discontinued, unless they can be converted into programmes corresponding to the licence. This option was not considered in engineering, since only one kind of first cycle programme, of 4 years duration, was established.

2. Quality assurance and accreditation in Romanian higher education

In the authoritarian and highly centralized regime which existed in Romania before 22 December 1989, there was no need for accreditation of higher education institutions and programmes. Programmes were approved by the Ministry of Education, which defined requirements concerning the duration, number of contact hours, number of courses a.s.o., being thus practically identical for the same specialization.

Important changes occurred starting with the academic year 1990-1991, due to the creation of new universities, in the private sector in the first place, but also in the public sector. In the table 1 are given data showing the evolution in the number of universities and faculties and in the number of students between 1988/1989 and 1993/1994.

Considering the significant changes illustrated by table 1, the establishment of a legal basis for a system of accreditation of higher education institutions and programmes became mandatory. Such basis was ensured by the Law 88/1993 “*Law on the accreditation of higher education institutions and the recognition of diplomas*”.

Table 1

Academic year	1988/1989	1993/1994
Number of public universities	44	56
Number of faculties in the public universities	101	237
Number of private universities	-	74
Number of faculties in the private universities	-	396
Number of students in the public universities	164.507	240.000
Number of students in the private universities	-	100.000

By the implementation of the Law 88/1993 was set a *National Council for Academic Assessment and Accreditation* (NCAAA), placed under the control of the Parliament. NCAAA functioned until 2005, to be replaced by ARACIS (Romanian Agency for Quality Assurance in Higher Education) founded on the basis of Law 87/2006.

The accreditation process in Romania entails two successive stages:

- a) provisional authorisation, which gives an institution the right to engage in the educational process and to organise entrance examinations as appropriate;
- b) accreditation per se, which grants the holding institution the right, in addition to the above, to issue diplomas, certificates and other documents recognised by the Ministry of Education and Research and to organise graduate, post-graduate, masters and doctoral examinations, as appropriate,

Procedures governing evaluation methodology, standards, reference standards and list of performance indicators can be found at <http://www.aracis.ro/en/procedures/> [1].

ARACIS is an autonomous public institution of national interest, a legal entity with its own income and expenditure budget, an independent agency, free from any political or other external influence.

ARACIS is a **general** agency, covering all fields of higher education, and has two strands:

1. Quality assurance

ARACIS is a full member of ENQA since June 2009 and was listed in the EQAR Register in September 2009

2. Accreditation

The accreditation of engineering programmes by ARACIS is based both on general criteria, common for all fields, and specific criteria set by two Engineering Sciences Committees.

The record of evaluations for the first cycle degree programmes undertaken by the two Engineering Science Committees from January 2007 to October 2012 is given in the table 2.

3. ARACIS and EUR-ACE

The birth certificate of the EUR-ACE system can be considered the approval by the European Commission of a 2-year project (2004-2006) named EUR-ACE (European Accreditation for Engineering) built by the University of Florence and a consortium of 10 partners, among which one from Romania: the Union of Associations of Civil Engineers of Romania (UAICR).

Table 2

Evaluation	Number
Provisional authorization of first cycle engineering programmes	141
Accreditation of first cycle engineering programmes	183
Periodic evaluation (quinquennial) of first cycle engineering programmes	303

Starting with 2009, ARACIS accredited also 628 second cycle (master) engineering programmes.

The most important outcome of the EUR-ACE project was the preparation of the document called “*EUR-ACE Framework Standards*” [2], taking into consideration standards used by various agencies in Europe involved in the accreditation of engineering programmes.

Presentations and discussions of the EUR-ACE Framework Standards took place in various countries represented in the project. One such event was organised on 5th March 2005 by UAICR at the University of Bucharest, with the support of the National Council of Academic Assessment and Accreditation (NCAAA). The workshop “*Towards a European accreditation system in engineering education*” was attended by rectors of the Technical Universities, deans of engineering faculties, members of the two engineering committees of NCAAA and professionals from the construction sector. Another important outcome of the EUR-ACE project was the foundation in Brussels in February 2006 of the international non-profit association “*European Network for the Accreditation of Engineering Education*” [ENAE]. 14 Associations and Agencies active in engineering education throughout Europe, including UAICR from Romania, were the founding members of ENAE.

ENAE has registered the EUR-ACE[®] Trademark and Authorizes National Agencies to add the EUR-ACE label to their accreditation. This authorization may be defined as “*meta-accreditation*”.

Regarding the significance of the EUR-ACE system and of the EUR-ACE label, it is worth to quote from a paper presented at an international conference organized by ARACIS in 2010 [3].

“The EUR-ACE Framework does not intend to substitute for national standards, but to provide a common reference framework as the basis for the award of a common European quality label.

Consequently, the EUR-ACE accreditation system was envisaged as based on a bottom-up approach involving the active participation of national accreditation agencies and leading at the end to a multilateral mutual recognition agreement. A supra-national European Engineering Accreditation Board was considered, but soon discarded and never proposed: accreditation is and will remain the task of national (or regional) agencies; the EUR-ACE label will be a complement to the national accreditation, aimed at giving them an international value. This decentralized approach appears to be rather novel in the world-wide panorama of programme accreditation systems”.

Two EU-funded projects (EUR-ACE IMPLEMENTATION and PRO-EAST) ran between 2006 and 2008 and made a significant contribution to the launch of the EUR-ACE system, the first in the EU, the second in Russia.

In November 2006, ENAE came to the view that six Accreditation Agencies (CTI in France, ASIIN in Germany, Engineers Ireland, Ordem dos Engenheiros in Portugal, RAEE in Russia, Engineering Council in UK), all active partners in the EUR-ACE project and founding members of ENAE, already fulfilled the requirements set by the Framework Standards and, as a consequence, were authorized to award the EUR-ACE label for a period of two years. Their meta-accreditation has been renewed in December 2008 after a rigorous re-assessment process including site visits by multi-agency teams. ENAE is committed not only to strengthen the EUR-ACE system in the six countries, but also to spread it into other countries in the European Higher Education Area. A document setting out the condition to be fulfilled and the procedure to be followed by an Agency wishing to join the EUR-ACE system has been drafted, as well as the relevant application form [4].

Between November 2008 and October 2010, ENAEE coordinated another EU-funded project, called EUR-ACE SPREAD, which principally targeted Turkey, Romania, Lithuania, Italy and Switzerland. The first concrete achievement of EUR-ACE SPREAD was the addition of the Turkish “*Association for Evaluation and Accreditation of Engineering Programs*” (MÚDEK) to the initial six EUR-ACE Agencies. MÚDEK had begun accrediting programmes on behalf of the Turkish Engineering Deans Council in 2003. MÚDEK became the seventh Agency authorized to award EUR-ACE label on 25 January 2009.

ARACIS, which in November 2009 became member of ENAEE, was a very active partner in the EUR-ACE SPREAD project. The Project Work package 6 of EUR-ACE SPREAD project was entitled “*Spread of the EUR-ACE system in Romania*”.

On 18 – 19 February 2009, an ENAEE/ EUR-ACE delegation composed of three “*mentors*” visited ARACIS. The “*mentors*” were Giuliano Augusti (ENAEE President), Pierre Compte (Eurocadres) and Jana Moehren (ASIIN). The delegation met first with ARACIS President Professor Ioan Curtu, with members of the ARACIS Board and with the President and the General Secretary of the General Association of Engineers of Romania. The following day, the delegation met representatives of 10 Romanian universities offering engineering programmes.

The visit revealed that there was one point on which ARACIS procedure was not in compliance with EUR-ACE Framework Standards: the evaluation teams for engineering programmes contained no professional representatives.

In order that Romania might fulfill the criteria of the “EUR-ACE Framework Standards”, the ARACIS Council decided in November 2009 to set up a “*Committee of Employers*”, which would to ensure the involvement, in the accreditation teams, of representatives of the professional world. It is also established a “*Register of evaluators coming from the professional world*”. In July 2010, was organized an intensive training course for these evaluators.

A second visit to ARACIS of the ENAEE/ EUR-ACE delegation, made up as on the first occasion, took place on 14-15 July 2010. This time the three “*mentors*” met with the members of the ARACIS Board, with members of the two ARACIS Engineering Sciences Committees and with the members of the newly created ARACIS Committee for employers.

ARACIS then conducted a revision of standards and procedures used by its two Engineering Sciences Committees, in order to make them fully compatible with EUR-ACE Framework Standard. In line with this initiative, it drew up “*Specific evaluation standards for granting the EUR-ACE label to study programmes in the fundamental field Engineering Sciences*” [5]. The new standards show a clear shift from input to output criteria based on learning outcomes.

In October 2010, ARACIS applied to ENAEE for authorization to award the EUR-ACE Label, thus fulfilling the objective set by the EUR-ACE SPREAD project for Romania.

4. ARACIS and ENAEE

As a result of the application received from ARACIS, ENAEE Label Committee named a Review Team composed by Erbil Payzin (Mudek, TR) Alexander Gromov (RAEE, RU) and Mark Jones (Engineering Council, UK), chaired by Erbil Payzin.

Between November 2010 and February 2011, the team reviewed the ARACIS Application Form and requested from ARACIS additional information regarding its accreditation process and standards.

A Review Team’s visit to ARACIS took place from 28 February to 5 March 2011.

Members of the team participated as observers to two ARACIS accreditation visits of 2-day each, to the following programmes offered by the Faculty of Engineering in Foreign Languages (FILS) of the University Politehnica of Bucharest:

- Information Engineering (first cycle) taught in English
- Chemical Engineering (first cycle) taught in English.

During the visit, the Review Team met also with ARACIS officials and with the members of the Employers Committee of ARACIS.

On 21 April 2011, the Review Team Chair participated as observer to the meetings of the ARACIS Accreditation Department and of the ARACIS Council in which were taken the accreditation decisions for the two first cycle programmes to whose accreditation visit the Review Team had previously attended.

On 2nd May 2011, the Review Team sent to EUR-ACE Label Committee his draft report on Application of ARACIS for Authorization to award the (first cycle) EUR-ACE Label.

On 23rd May 2011, ARACIS transmitted comments to various sections of the draft review report. These comments were included in the final report of 2nd June 2011 [6].

The Label Committee met on 27th September 2011, to consider the report of the Review Team. As showed in the letter sent on 10th October 2011 to ARACIS by the Chair of the Review Team, the Committee welcomed all of the many positive matters related in the report, but were of the opinion that the dialogue between the Review Team and ARACIS should continue until a number of improvements were satisfactorily implemented and demonstrated, such as:

- a) revise the procedures to be followed for EUR-ACE accreditation by ARACIS so that sufficient emphasis is placed on consideration of programme outcomes and their achievement by graduates.*
- b) introduce requirements for composition of the evaluation panel to ensure that subject expertise is appropriate and that sufficient resource is available to complete the review.*
- c) introduce requirements for ensuring that the visit schedules are designed to permit the particular evaluation activities required to judge key parameters related to EUR-ACE accreditation, particularly those pertinent to the achievement of program outcomes by the graduates.*

The Administrative Council of ENAEE, which met on 12th October 2011, considered that, based on the Review Team report, it was **too early** to award to ARACIS the authorization to grant the EUR-ACE Label.

Learning about the decision, ARACIS started to take appropriate measures to answer to the recommendations of the review Team. Thus, improvements were made in the evaluation procedures, particularly on assessment of achievement of programme outcomes. The contribution of Employers Committee to the accreditation procedure is going to be enhanced by including in the review panel of representatives of employers who have the experience and professional competence to make a judgment on the specific engineering programme under evaluations.

In its meeting on 2nd February 2012, the EUR-ACE Label Committee noted positively these improvements. However, requested the Review Team Chair to attend one additional accreditation visit made by ARACIS, in order to observe how the new procedures are being implemented in practice. As a result, between 27-30 May 2012 the Review Team Chair attended as an observer the accreditation visit made by ARACIS to *Manufacturing Engineering* (first cycle) programme at the Technical University Cluj-Napoca.

In addition to the attendance of the accreditation visit in Cluj-Napoca (28-29 May 2012) the Review Team Chair met on 30 May 2012 with ARACIS officials.

A Supplementary Report to EUR-ACE Label Committee was issued after the May 2012 visit of the Review Team Chair, based on observations made during the visit, on informations obtained from the documentation provided before and during the visit and from discussions with the evaluation panel members and with ARACIS officials during the visit [7].

The Supplementary Report presented positive findings of the Review Team Chair in relation to the three recommendations made by the Label Committee in its meeting of 27 September 2011.

5. ARACIS and EUR-ACE Labels

The Report of the 13th June 2012 of the Review Team, considered as a follow- on supplement to the original Report presented in September 2001, represented a background for the Label Committee to recommend, on 13th September 2012, to the ENAEE Administrative Council, to authorize ARACIS to deliver EUR-ACE Labels. The Administrative Council approved in the same day the recommendation and, thus, ARACIS became the eight agency authorized to deliver the EUR-ACE Label. ARACIS has been authorized for delivery of first cycle labels until 2017.

The decision adopted on 13th September 2-12 marked the end of a long journey which started almost 4 years ago, in November 2008, when ARACIS became partner in the EU-funded project EUR-ACE SPREAD.

Important events occurred for ARACIS along this journey. The ones related to the partnership of ARACIS in the project EUR-ACE SPREAD have been previously described in the paper.

Let's review in brief main actions taken by ARACIS which paved the way to the statute of agency authorized to deliver EUR-ACE labels:

- the foundation of Employers Committee, followed by the periodic training of evaluators of this Committee;
- the revision of the accreditation methodology for engineering sciences in order to fully comply with the EUR-ACE Framework Standards;
- publication of "*Specific evaluation standards for granting the EUR-ACE label to study programmes in the fundamental field of engineering sciences*";
- the development of the EUR-ACE accreditation process as an additional layer to the core (mandatory) process used for the periodic evaluation of engineering study programmes;
- ensuring the run of mandatory and EUR-ACE accreditation process for engineering programmes in an integrated way using a joint evaluation panel consisting of 3 experts assigned by the relevant Engineering Sciences Committee and 2 experts assigned by the Employers Committee;

Implementation the EUR-ACE system in Romania was presented in international journals [8], [9].

The immediate objectives for ARACIS, in the new circumstances, are:

- to conduct promotional activities in order to convince institutions to make an option for the (voluntary) EUR-ACE accreditation simultaneously with the mandatory accreditation;
- to increase significantly the number of evaluators coming from the professional world, in order to cover all domains of engineering sciences;
- to organize activities for the training of all evaluators involved in the process of accreditation of engineering programmes, to observe the standards of assessment for the award of EUR-ACE Label;

- to prepare an application to be submitted to ENAEE for the authorization to deliver EUR-ACE labels also for the second cycle (Master) study programmes.

6. Concluding remarks

It is worth to remind the main credentials of ARACIS when applying in October 2010 to ENAEE to be authorized to deliver EUR-ACE labels:

- a rich experience of almost 7 years (considering also its predecessor, NCAAA) in the evaluation of hundreds of engineering programmes;
- activity in a country with a system of engineering education strong, diverse and with a tradition of almost 150 years;
- membership in ENAEE, ENQA, CEEN-QA and listed in ENQA Register;
- the advantage of being mentored during the two years of the EUR-ACE SPREAD project by a most capable team, chaired by the ENAEE President;
- provided willingness to act quickly in order to have its standards and procedures complying with EUR-ACE Framework Standards.

These credentials helped, obviously, ARACIS to fulfill its objectives of being authorized to deliver EUR-ACE Label.

It was a happy end but, frankly speaking, the process lasted too much. A better communication between the applicant organization and the authorizing one, would certainly minimize the duration.

ARACIS is confident that the success of its application would give momentum not only to the engineering programmes Romanian universities are offering, but also to the young candidates to university studies and to already enrolled students.

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