

Quality Assurance in Engineering Education The EUR-ACE Experience

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At the turn of the XXIth Century
Engineering education has to face

- The rise of the European Higher Education Area
- The globalisation of the projects and of the economies
- New needs of society on the long range term

EUR-ACE System

February 2006, 14 European associations concerned with engineering education :

- create ENAEE (European Network for Accreditation of Engineering Education)
- awarding the EUR-ACE® label (European Accreditation of Engineering Education)

ENAAEE mission (1)

- Build a pan-European framework for the engineering education in order
- to enhance the quality of the graduate engineers,
 - to facilitate the professional mobility of professional engineers,
 - to promote quality and innovation in engineering education.

ENAAEE mission (2)

To set up and implement a decentralized system of accreditation of engineering education, leading to pan-European recognition of national accreditations.

The EUR-ACE label

ENAAE authorizes accreditation agencies to award the EUR-ACE® Label to engineering degree programmes they accredit, at Bachelor and Master degree level.



The **EUR-ACE® label**, listed by the European Commission among the **“European Quality Labels”** guarantees ,

- the scientific and academic quality of an engineering programme
- its suitability as **entry route to the engineering profession**
 - and its relevance for the “engineering” job

List of Authorized Agencies (1)

FRANCE - CTI - Commission des Titres d'Ingénieur -
www.cti-commission.fr.

GERMANY - ASIIN - Fachakkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften, und der Mathematik e.V. - www.asiin.de

IRELAND - Engineers Ireland - www.engineersireland.ie

ITALY- QUACING - Agenzia per la Certificazione di Qualità e l'Accreditamento EUR-ACE dei Corsi di Studio in Ingegneria - www.quacing.it

POLAND - KAUT - Komisja Akredytacyjna Uczelni Technicznych [Accredit. Commission of Universities of Technology] - www.kaut.agh.edu.pl

List of Authorized Agencies (2)

PORTUGAL - Ordem dos Engenheiros -
www.ordemengenheiros.pt

RUSSIA - AEER - Association for Engineering Education in
Russia - www.aeer.ru.

ROMANIA - ARACIS - The Romanian Agency for Quality
Assurance in Higher Education - www.aracis.ro

TURKEY - MÜDEK - Association for Evaluation and
Accreditation of Engineering Programmes -
www.mudek.tr

UK - Engineering Council - www.engc.org.uk

List of Authorized Agencies

(3)

SWITZERLAND: OAQ - Swiss Center of Accreditation and Quality Assurance in Higher Education

FINLAND: FINHEEC - Finnish Higher Education Evaluation Council

SPAIN: ANECA – Agencia Nacional de Evaluación de la Calidad y Acreditación [that will EUR-ACE-accredit engineering programmes jointly with IIE – Instituto de la Ingeniería de España]

Moreover

BELGIUM: CTI and AEQES, French-Belgian HE Accreditation Agency, accredit jointly and award the EUR-ACE label to engineering programmes in French-language Belgian HEIs

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EUR-ACE standards and guidelines

Outcomes oriented

Programme Outcomes describe the knowledge, understanding, skills and abilities which an accredited engineering degree programme must enable a graduate to demonstrate.

Separate Outcomes for Bachelor Degree programmes and Master Degree programmes.

EUR-ACE standards and guidelines

**Knowledge and understanding;
Engineering Analysis;
Engineering Design;
Investigations;
Engineering Practice;
Making Judgement Skills;
Communication and Team-working Skills;
Learning Skills.**

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EUR-ACE programmes

May 2014

Germany:	496
France:	360
Turkey:	156
Ireland:	140
Russian Fed	122
United Kingdom:	118
Kazakhstan:	49
Belgium:	32
Portugal:	32
Italy:	30
Switzerland:	17

1613 programmes
In 24 countries

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EUR-ACE programmes

May 2014

Australia:	13
Finland:	9
Peru:	8
Vietnam:	8
Poland:	6
Croatia:	5
Bulgaria:	3
Slovenia:	3
Serbia:	2

1613 programmes
In 24 countries

China:	1
Spain:	1
Grenada:	1
Romania:	1

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30/05/20
14

EUR-ACE programmes

May 2014

First Cycle
diplomas 693

Integrated
diplomas 480

Second Cycle
diplomas 440

Total: 1613

1613 programmes
In 24 countries

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Mutual Recognition Agreement (Nov 2014)

An authorised agency in one country recognises that EUR-ACE labelled degree programmes from authorised agencies in other countries meet the EUR-ACE Framework Standards requirements at the relevant Bachelor or Master level.

Agreement reflects the diversity in Europe : engineering profession regulated or not. Each agency may keep additional criteria for its own “seal”.

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The EUR-ACE system for the European engineering Bachelor and Master degrees parallels

The International Engineering Alliance/Washington Accord system for the engineering Bachelor degrees in the anglo-saxon world

A joint WA/ENAAEE group works toward a worldwide recognition agreement

Has ENAEE succeeded ?

To build a pan-European framework for the engineering education ?

The EUR-ACE Framework and Standards (EAFS) have proven their reliability, their fitness for purpose, their adaptability to national contexts

The mutual recognition agreement

Has ENAEE succeeded ?

To build a pan-European framework for the engineering education ?

13 authorized agencies

24 countries

But Central Europe, Nordic countries almost absent

EUR-ACE : a good practice according to the European Commission

Meeting our stakeholders' expectations

Main achievements
Efforts needed

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14



Accreditation agencies

- Impact on national frameworks
- Certification of quality of accreditation agency according to ESG and employers' requirements
- Possibility to accredit in other European countries and beyond in which no authorized agency are operating

Accreditation agencies

Need to increase collaborations and networking :

- *pooling of experts,*
- *labelling of joint and double diplomas,*
- *exchanges of good practices*

Higher education institutions

- Assurance that programme meets quality standards set by the European engineering community
- Automatic inclusion of EUR-ACE-accredited courses in the FEANI index; integral first step for the European professional card
- Benchmarked against other European (EHEA) programmes

Higher education institutions

- *Basis for QA of joint/double degree programs*
- *Incentives for students to choose EUR-ACE labelled programmes (mainly abroad)*
- *Insufficient networking*
- *Not yet considered by ENAEE : Continuing education, New information and communication technologies for education*

Students/Graduates

- EUR-ACE programmes they graduated from meet high European and international standards
- International recognition of degrees as meeting academic standards (link to ERIC/NARICS essential)
- *EUR-ACE® label facilitates horizontal and vertical mobility*

Employers

Competences of graduates: Candidate's knowledge, understanding and practical capabilities meet international standards

- Not only academic standard of programme checked but also relevance for profession

- *EUR-ACE label is not yet well-known*
- *Employers seek for databases on individual certification.*

New challenges



Keywords for the ENAE future :

- Spreading
- Strengthening
- Networking

Thank you

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