

Quality Assurance, accreditation and engineers mobility in the European Space

Bernard Remaud, ENAEE President



MEDACCR – Genoa – Feb 2018



European Network for the Accreditation of
Engineering Education

**The European Network for
the Accreditation
of Engineering Education (ENAE)
awarding the EUR-ACE[®] label
(2017- 15 authorized agencies – 2800 labelled programmes)**

Frameworks for engineers

- Engineers activities have a strong impact on society and economy; they engage their responsibility, like medical doctors, nurses, architects...
- Need to secure the engineering education as an ***entry route to the engineering profession*** (pre-professional accreditation)

A worldwide trend

- What an engineering graduate is supposed to know and be able to do,
 - ✓ Programme outcomes/graduate attributes
- Requirements and goals for the educational system to provide engineering graduates with the expected outcomes,
 - ✓ Quality Assurance for the programme providers and for the accreditation agencies

2 global frameworks for engineering education

International Engineering Alliance

- Washington accord (1989-Engineers)
- Sydney accord (2001- Technologists)
- Dublin accord (2002- Technicians)



« Best practice in accreditation of engineering programmes » 2015

Learning outcomes/Graduate attributes



The European Network for accreditation of engineering education (2006-ENAE)

EUR-ACE[®] accord (2014):

- EUR-ACE Label (Bachelor)
- EUR-ACE Label (Master)



European education frameworks for engineers

Quality assurance

Bergen Communiqué (2005)
« Guarantee of Quality in HE »



European Standards and
Guidelines (ESG, ENQA,...)



QA Register (EQAR)



EUR-ACE
Framework Standards and
guidelines (EAFSG)

Learning outcomes

European Qualification
Framework



Dublin descriptors



EUR-ACE Framework Standards
and guidelines (EAFSG)

The 2 pillars of ENAEE « wisdom »

Quality assurance

Assessment of the processes and procedures:

- Programme aims
- Teaching and learning procedures resources
- Students (from admission to graduation)
- Internal quality assurance

Compliant with the

- ESG -European standards and guidelines for Quality Assurance in the EHEA-
- « Best practice in engineering programme accreditation » (IEA/ENAEE)

Programme outcomes

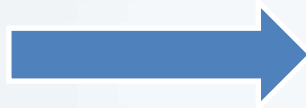
What an engineering degree must enable a graduate to demonstrate

8 domains for the knowledge, understanding, skills and abilities

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

The equivalences of the EUR-ACE and IEA systems is still an issue.

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



**Accreditation
Agencies**



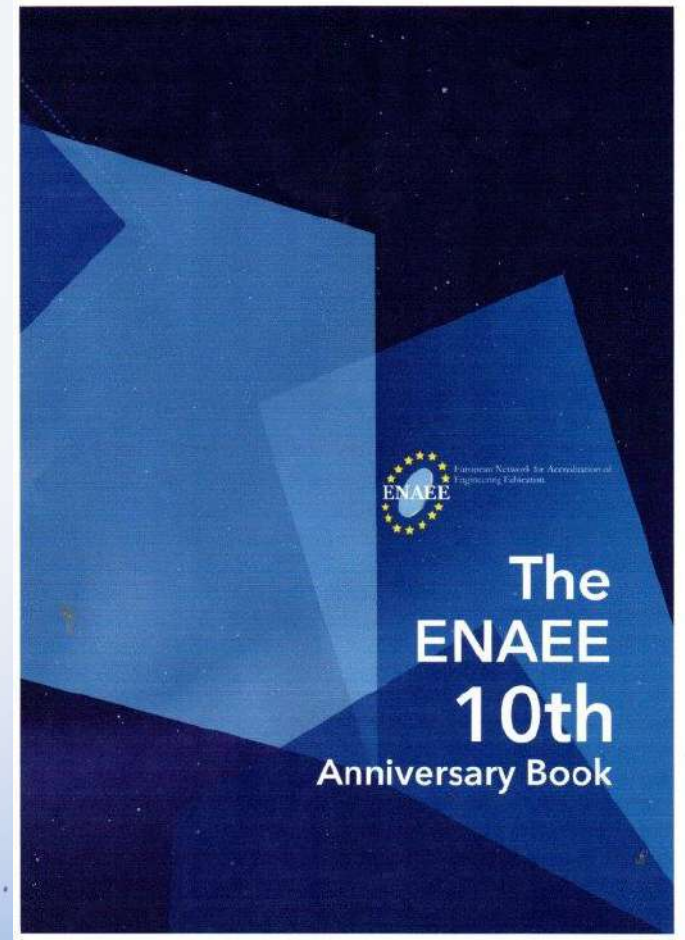
**Bachelor & Master
Engineering
Degree
Programmes**

EUR-ACE® Label



The 10th anniversary e-book

<http://www.enaee.eu/wp-assets-enaee/uploads/2012/01/ENAAEE-10th-Anniversary-E-Book-single-page.pdf>



The EUR-ACE database

"manufacturing"). Then apply "Filter". Clicking on a programme name will provide further details on the programme and the awarding HEI.

Overview By degree type By country

Using this filter provides a list of EUR-ACE labelled programmes that correspond to the criteria you set above.

Accreditation agency	HEI name	Programme name	Degree title	Degree type	Accreditation period	Country	City (local)
CTI	Higher Education Institution _ Ecole supérieure privée d'ingénieurs en technologie	Engineering master degree in Computer sciences			01/09/2014 until 31/08/2017	Tunisia	ARIANA
CTI	Higher Education Institution _ Ecole supérieure privée d'ingénieurs en technologie	Engineering master degree in Telecommunications			01/09/2014 until 31/08/2017	Tunisia	ARIANA
CTI	Higher Education Institution _ Ecole supérieure privée d'ingénieurs en technologie	Engineering master degree in Telecommunications			01/09/2014 until 31/08/2017	Tunisia	ARIANA
CTI	Higher Education Institution _ École nationale d'ingénieurs de Tunis	Engineering master degree in Telecommunications		SCD integrated	01/09/2017 until 31/08/2023	Tunisia	TUNIS
CTI	Higher Education Institution _ École nationale d'ingénieurs de Tunis	Engineering master degree in Civil engineering		SCD integrated	01/09/2017 until 31/08/2023	Tunisia	TUNIS
CTI	Higher Education Institution _ École nationale d'ingénieurs de Tunis	Engineering master degree in Advanced technologies		SCD integrated	01/09/2017 until 31/08/2023	Tunisia	TUNIS
CTI	Higher Education Institution _ École nationale d'ingénieurs de Tunis	Engineering master degree in Computer science		SCD integrated	01/09/2017 until 31/08/2023	Tunisia	TUNIS

EUR-ACE in French

The image shows a screenshot of a web browser displaying a PDF document. The browser's address bar shows the URL: www.enaee.eu/wp-assets-enaee/uploads/2012/02/170215-French-version-EAFSG.pdf. The document content includes the logos of the Swiss Agency of Accreditation and Quality Assurance (AAQ) and the Commission des titres d'ingénieur (Cti). The main title of the document is "Références et lignes directrices du label EUR-ACE®". Below the title, it states "VERSION DU 31 MARS 2015". The text further explains that this version was proposed by AAQ and Cti for the francophone network of quality agencies for higher education, and that its purpose is to facilitate the appropriation of references and guidelines in French-speaking countries, though it does not replace the original English version.

AAQ swiss agency of accreditation and quality assurance

Cti Commission des titres d'ingénieur

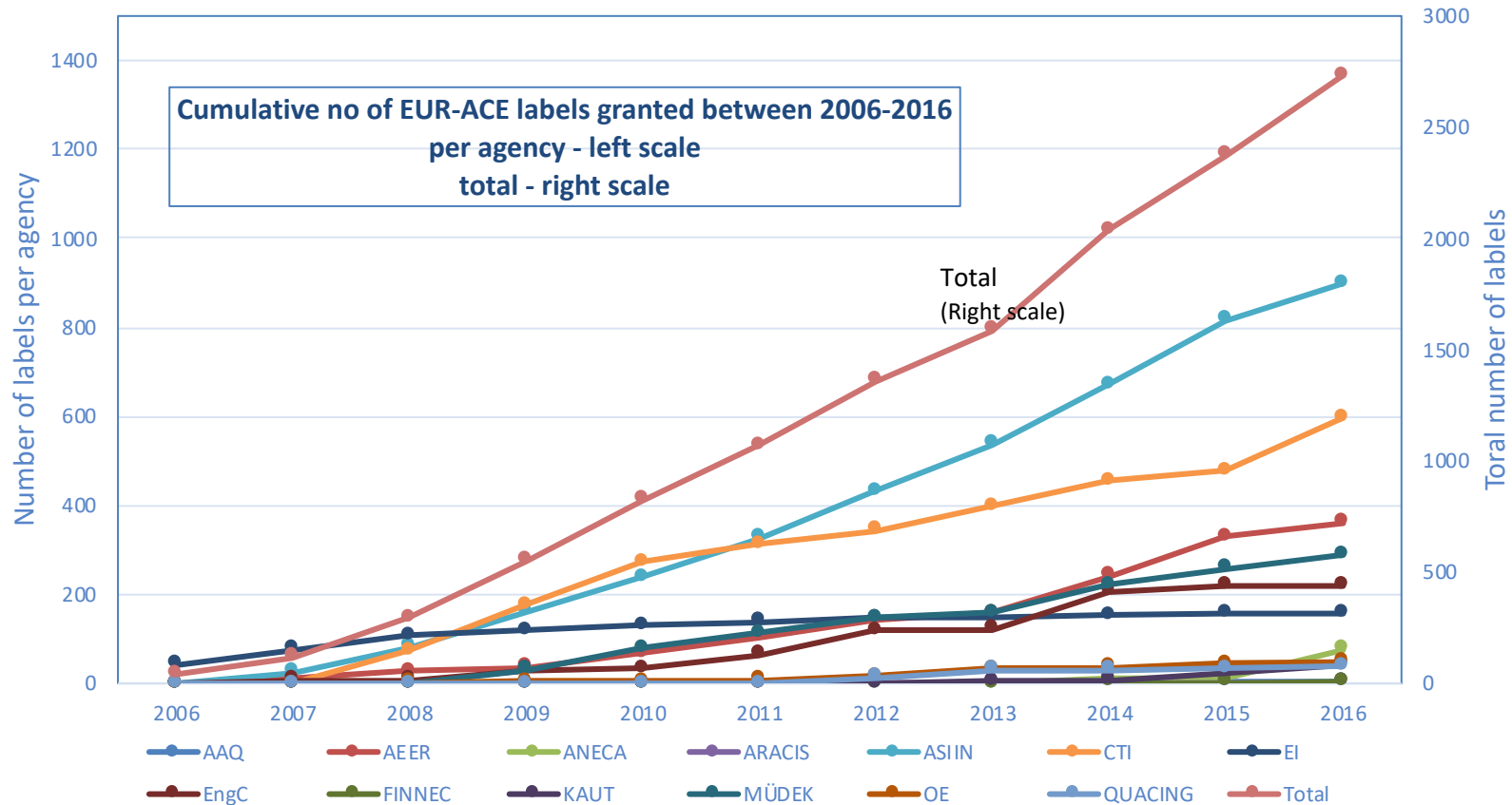
Références et lignes directrices du label EUR-ACE®

VERSION DU 31 MARS 2015

Traduction proposée par l'AAQ et la Cti, au sein du réseau francophone des agences qualité pour l'enseignement supérieur.

Cette version a pour objectif de faciliter l'appropriation des références et lignes directrices par les pays francophones mais ne remplace en aucun cas la version originale rédigée en anglais, qui seule fait foi.

EUR-ACE® labels granted



Authorized agencies (Nov 2017)



Global vision of the engineer professional trajectory



EUR-ACE® Accord

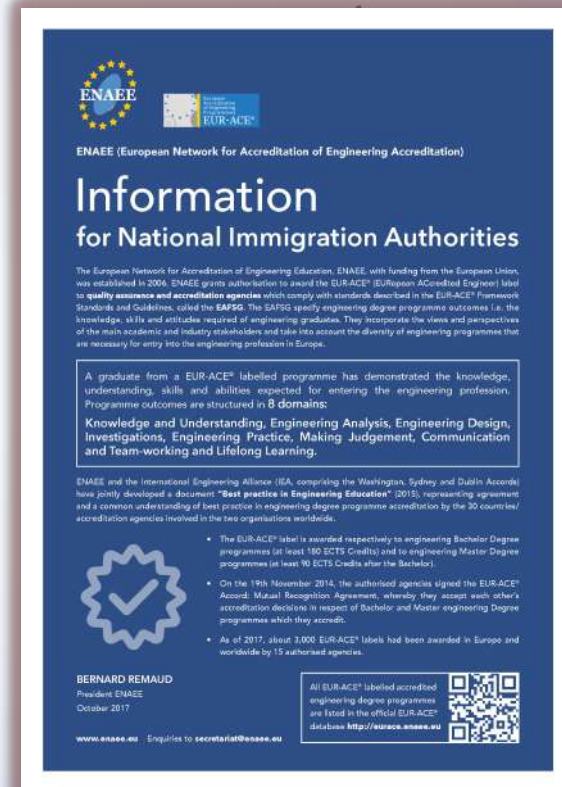
On 19th November 2014, the 13 (15, in 2017) authorised agencies signed a Mutual Recognition Agreement whereby they accept each other's accreditation decisions in respect of Bachelor and Master of Engineering degree programmes which they accredit.



Certificate for immigration authorities

Often a lack of understanding of the graduate attributes

Particularly outside Europe



The poster is titled "Information for National Immigration Authorities" and features the ENAEE and EUR-ACE logos at the top. It provides detailed information about the EUR-ACE accreditation process, including a list of graduate attributes and a QR code for more information.

ENAEE (European Network for Accreditation of Engineering Accreditation)

Information for National Immigration Authorities

The European Network for Accreditation of Engineering Education, ENAEE, with funding from the European Union, was established in 2006. ENAEE grants authorisation to award the EUR-ACE® (European Accredited Engineer) label to **quality assurance and accreditation agencies** which comply with standards described in the EUR-ACE® Framework Standards and Guidelines, called the **ESFES**. The ESFES specify engineering degree programme outcomes (i.e. the knowledge, skills and attitudes required of engineering graduates). They incorporate the views and perspectives of the main academic and industry stakeholders and take into account the diversity of engineering programmes that are necessary for entry into the engineering profession in Europe.

A graduate from a EUR-ACE® labelled programme has demonstrated the knowledge, understanding, skills and abilities expected for entering the engineering profession. Programme outcomes are structured in **8 domains**:


Knowledge and Understanding, Engineering Analysis, Engineering Design, Investigations, Engineering Practice, Making Judgement, Communication and Team-working and Lifelong Learning.

ENAEE and the International Engineering Alliance (IEA, comprising the Washington, Sydney and Dublin Accords) have jointly developed a document "**Best practice in Engineering Education**" (2015), representing agreement and a common understanding of best practice in engineering degree programme accreditation by the 30 countries/ accreditation agencies involved in the two organisations worldwide.

- The EUR-ACE® label is awarded respectively to engineering Bachelor Degree programmes (at least 180 ECTS Credits) and to engineering Master Degree programmes (at least 90 ECTS Credits after the Bachelor).
- On the 19th November 2014, the authorised agencies signed the EUR-ACE® Accord: Mutual Recognition Agreement, whereby they accept each other's accreditation decisions in respect of Bachelor and Master engineering Degree programmes which they accredit.
- As of 2017, about 3,000 EUR-ACE® labels had been awarded in Europe and worldwide by 15 authorised agencies.

BERNARD REMAUD
President ENAEE
October 2017
www.enaee.eu Enquiries to: secretariat@enaee.eu

All EUR-ACE® labelled accredited engineering degree programmes are listed in the official EUR-ACE® database <http://eurace.enaee.eu>



Thank you for your attention

www.enaee.eu

bernard.remaud@univ-nantes.fr