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# EUR-ACE®: THE EUROPEAN ACCREDITATION SYSTEM OF FIRST- AND SECOND-CYCLE ENGINEERING DEGREE PROGRAMMES

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Lifelong Learning Programme

# Outline

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- Accreditation of EE: definition
- The EUR-ACE® system: short intro
- Accreditation of EE in Europe

## Part II

- The EUR-ACE® system and its implementation
- How does the EUR-ACE® accreditation system work?
- A Sample of EUR-ACE® Label Certificate
- The EUR-ACE system quoted as an example of good practice (some references)

## Part III

- Spreading the System

## Part IV

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# Part I – Accreditation of EE: Introduction and Definition





# Definition

Let us start with the definition adopted by ENAEE & EUR-ACE: Accreditation of an [Engineering] Education Programme is the result of a process to ensure suitability of programme as entry route to the [*engineering*] profession, by means of:

- Periodic assessment against accepted standards
- Peer review of written and oral information by trained and independent panels including academics and professionals
- **Accreditation of programme, not of Department or University**
- Accreditation of education, not of whole formation



**Thus, the Quality of accredited degrees  
Is guaranteed at all “levels”**

But this definition may be controversial and give rise to misunderstandings: it must be qualified.

Then, how can we qualify the **Accreditation** given in accord to this definition?

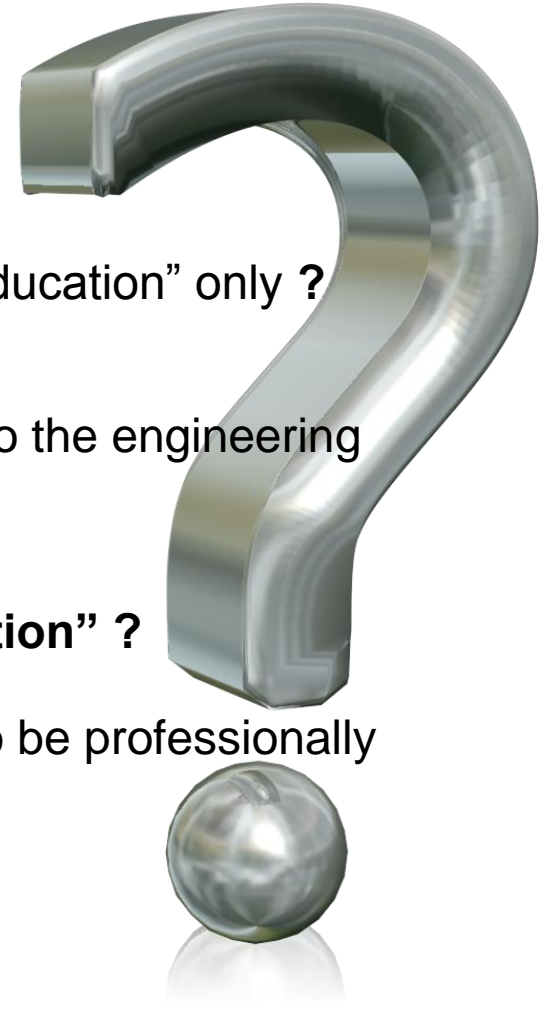
**Academic accreditation**, because it regards “education” only ?

**NO**, because it refers to the programme as entry route to the engineering profession

Then, “**professional accreditation**” ?

**NO**, because it does **not** include all that is necessary to be professionally qualified.

It can rather be defined  
**Pre-professional Accreditation**





**Accreditation** of educational programmes as entry route to a profession (i.e. pre-professional accreditation) has been proved to be a powerful tool to improve at the same time academic quality and relevance for the job market.



Indeed, the word accreditation was not used in European specialized literature and documents until the late 1990s, when it came from American usage.



Hence, Europeans still encounter significant difficulties in recognition of academic and professional qualifications, and consequently in trans-national mobility as students and graduates, essentially because of **the lack of a European accreditation system of engineering education accepted on the continental scale.**

This was (and is) the basic motivation of the whole EUR-ACE exercise...

# Part II - The EUR-ACE® system and its implementation







The EUR-ACE accreditation system was envisaged by the EU-supported **EUR-ACE project** (2004-06) to make up for the lack of a European accreditation system of engineering education accepted on the continental scale.

To implement the EUR-ACE system, the European Network for Accreditation of Engineering Education (ENAE)

[www.enaee.eu](http://www.enaee.eu)

was founded in February 2006

by 14 concerned Associations.

ENAE secretariat is permanently

hosted by FEANI (European Federation of National Engineering Associations)



European Network for Accreditation of  
Engineering Education



## Two main outcomes of the EUR-ACE project:

a) a synthesis of existing national Standards:

### **EUR-ACE Framework Standards for the Accreditation of Engineering Programmes**

b) a proposal for the Organization and Management of the  
**EUR-ACE Accreditation System**

You can find the EUR-ACE Standards and all other relevant documents on the site of ENAEE (European Network for Accreditation of Engineering Education) [www.enaee.eu](http://www.enaee.eu) or [www.eur-ace.eu](http://www.eur-ace.eu)

# KEY POINTS agreed during the EUR-ACE project



- NOT an European “Directive”
- NOT an European Accreditation Board
- A bottom-up agreement towards a decentralized accreditation system in which National (or Regional) Agencies would play a major role
- EUR-ACE-accredited programmes would satisfy a common set of Standards (EUR-ACE Framework Standards).
- The EUR-ACE accreditation would distinguish between FIRST CYCLE and SECOND CYCLE DEGREES, in accord with the European Qualification Frameworks.



# EUR-ACE® Framework Standards for the Accreditation of Engineering Programmes

The EUR-ACE Framework Standards, that were compiled as a “synthesis” between existing national Standards, specify the **Programme Outcomes** to be satisfied. They:

- Are valid for all branches of engineering and all profiles
- Distinguish between **First** and **Second Cycle** programmes, as defined in the European Qualification Frameworks
- Are applicable also to “**integrated programmes**”, i.e. programmes that lead directly to a Second Cycle degree
- **Describe the abilities that the graduates must achieve but not how they should be taught**
- Can accommodate national differences of educational and accreditation practice

**The EUR-ACE® Standards** distinguish between First cycle (FC) and Second Cycle (SC) degrees, and identify 21 programme outcomes for First Cycle degrees and 23 for Second Cycle degrees, grouped under six headings, namely:

- Knowledge and Understanding
- Engineering Analysis
- Engineering Design
- Investigations
- Engineering Practice
- Transferable Skills



For each heading the Outcomes of **First Cycle** and **Second Cycle** degrees are specified.




Note that **the EUR-ACE® Framework Standards** require the assessment of a programme to consider not only the Programme Outcomes, but all following items:

- 1. Needs, Objectives and Outcomes;
- 2. Educational Process;
- 3. Resources and Partnerships;
- 4. Assessment of the Educational Process;
- 5. Management System

and for each item specify the criteria to be assessed.



Full text of EUR-ACE® Framework Standards  
on [www.enaee.eu](http://www.enaee.eu) & [www.eur-ace.eu](http://www.eur-ace.eu)

A detailed close-up photograph of a mechanical watch movement. The image shows various components including a large spiral spring on the left, several interlocking gears of different sizes, and metal plates with decorative engravings. The lighting highlights the metallic textures and the precision of the engineering.

**But, how does the EUR-ACE<sup>®</sup> accreditation system work?**

- **National (or Regional) Agencies accredit** EE programmes;
- If the Agency satisfies appropriate Quality requirements, **and** the accredited programmes satisfy the **EUR-ACE Framework Standards**, the **EUR-ACE® quality label can be “added”** to the national accreditation, thus giving it an international value.
- The EUR-ACE® label distinguishes between **FIRST CYCLE and SECOND CYCLE DEGREES**, in accord with the European Qualification Frameworks.
- “Integrated (long) Programmes” can be awarded the **SC** label



The last points characterize the EUR-ACE system in accord with the “Bologna” approach, and allows to define it “European Accreditation ...”



ENAAE, proprietor of the EUR-ACE® trademark,  
authorizes National Agencies to award the EUR-ACE®  
(FC and/or SC) label.

Today (October 2010) **seven** “Agencies” are authorized  
(EUR-ACE-accredited):

- **ASIIN** (Accreditation Agency for Study Programs in Engineering, Informatics, Natural Sciences and Mathematics), Germany
- **CTI** (Commission des Titres d'Ingénieur), France
- **Engineers Ireland**
- **RAEE** (Russian Association for Engineering Education)
- **Engineering Council**, United Kingdom
- **Ordem dos Engenheiros**, Portugal Since January 2009:
- **MÜDEK** (Association for Evaluation and Accreditation of Engineering Programs), Turkey

**Next step (October 2010): starting-up the Italian Agency for the EUR-ACE Accreditation**

ENAAEE, proprietor of the EUR-ACE® trademark, authorizes National Agencies to award the EUR-ACE® (FC and/or SC) label.



As of October 2010, **600** EUR-ACE labels have been awarded (although not all appear already on the ENAAEE website):

| Agency             | Date accr/n | Countries oper. | FCD        | SCD        | Total      |
|--------------------|-------------|-----------------|------------|------------|------------|
| <b>ASIIN</b>       | Nov.2006    | DE, CH          | <b>104</b> | <b>86</b>  | <b>190</b> |
| <b>CTI</b>         | "           | FR,BE,BG,ES     | --         | <b>213</b> | <b>213</b> |
| <b>Eng.Ireland</b> | "           | IE              | <b>72</b>  | <b>21</b>  | <b>93</b>  |
| <b>RAEE</b>        | "           | RU, (KZ)        | <b>5</b>   | <b>30</b>  | <b>35</b>  |
| <b>EngC</b>        | "           | UK              | <b>?</b>   | <b>?</b>   | <b>36</b>  |
| <b>OE</b>          | "           | PT              | <b>0</b>   | <b>4</b>   | <b>4</b>   |
| <b>MÜDEK</b>       | Jan.2009    | TR              | <b>29</b>  | --         | <b>29</b>  |



Sample of EUR-ACE®  
Label Certificate:  
the relevant programme  
is designated as a  
**FIRST [or SECOND]  
CYCLE EUROPEAN-  
ACCREDITED  
ENGINEERING  
programme**  
the respective graduates  
can call themselves  
either  
**EUR-ACE® Bachelor**  
or  
**EUR-ACE® Master**



This is to certify that the **xxx** programme

Official name of the education programme in original  
language (and in English)

provided by

Name of Educational Institution, and Faculty or Department,  
(if applicable)

accredited by

(Accrediting Agency)

on (dd month yyyy) until (dd month yyyy)

satisfies the outcomes of Second Cycle programmes specified in the EUR-ACE  
Framework Standards for the Accreditation of Engineering Programmes, and  
therefore for the above period of accreditation is designated as a SECOND CYCLE  
EUROPEAN-ACCREDITED ENGINEERING PROGRAMME.

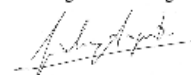


For the European Network for  
Accreditation of Engineering  
Education (ENAE)

Logo

For **xxx**

The President  
Prof. Ing. Giuliano Augusti, Sc.D.

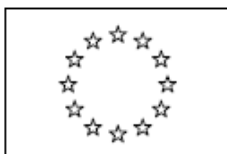


Brussels, **xx Month 200x**

The **xxx**  
**xxxx**  
Signature

**xx, xx Month 200x**

The **EUR-ACE® label** is quoted in an official European Commission Report (September 2009) as an **example of good practice** in QA:



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 21.9.2009  
COM(2009) 487 final

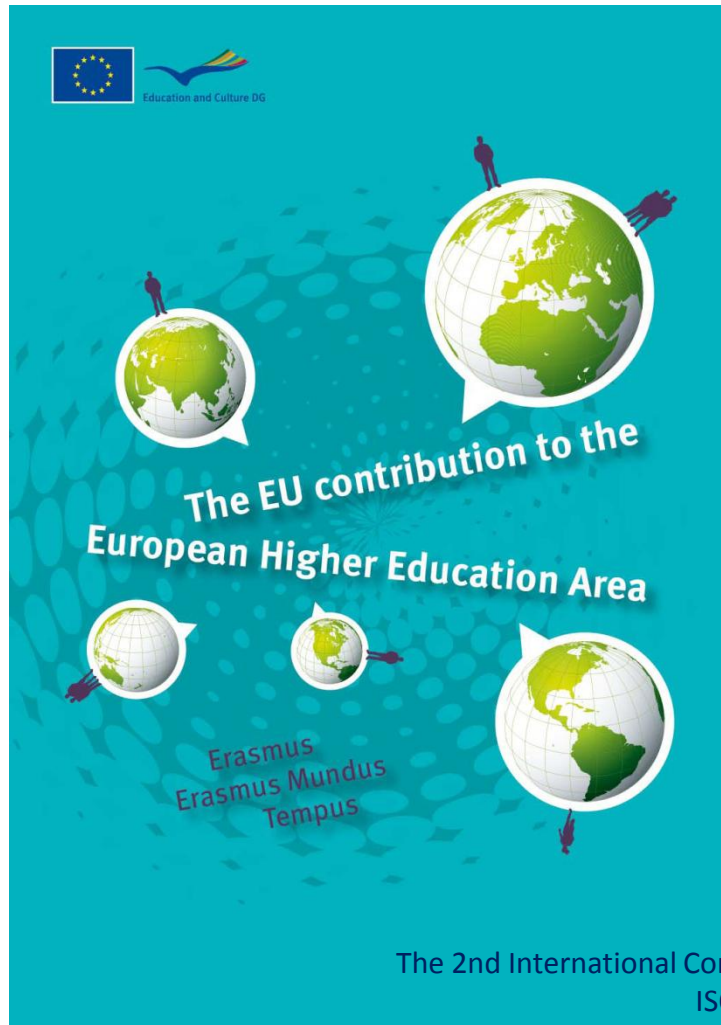
**REPORT FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN  
PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND  
THE COMMITTEE OF THE REGIONS**

**Report on progress in quality assurance in higher education**

***Good practice***

*The EUR-ACE label in engineering exists at the bachelor and master level. Standards were defined at European level, but are applied through national quality assurance agencies that are authorised to issue EUR-ACE “labels” together with their national accreditation. Several hundred labels have already been awarded, but they are still available from only seven national agencies<sup>23</sup>.*

The EUR-ACE® label is quoted also  
in a EU publication issued for the  
“Bologna Anniversary  
Conference”, March 2010:



(...) The Commission is supporting the development of a series of subject-specific **European quality labels**, which could/may lend their standards to existing agencies or become agencies in their own right. Examples include the **EUR-ACE label in engineering** and the Eurobachelor, Euromaster and Eurodoctorate labels in chemistry (...)

The EUR-ACE® label is quoted also in a EU publication issued for the “Bologna Anniversary Conference”, March 2010:



(...)

## ***EUR-ACE Implementation and the EUR-ACE Label***

This project has elaborated a **European system of accreditation of engineering programmes at the first and second cycle level.** Training of international accreditation experts and the award of the EUR-ACE labels are among the project outcomes.

(...)





## **Part III. Spreading the system**





The initial core of the EUR-ACE system includes seven countries [France, Germany, Ireland, Portugal, Russia, Turkey, UK] with very different educational and professional systems.

Consequently, a great variety can be noted also in the types of organizations participating in the EUR-ACE system: professional organizations (OE/PT, EngC, Engrs.Ireland), engineering education societies (RAEE), National accreditation body (CTI, MÜDEK) accreditation agency (ASIIN)

Although these seven countries are already a very significant sample of the 47 countries of the European Higher Education Area (EHEA), 5 within and 2 outside the EU, their number is very limited, and **must increase !!!!**

## EUR-ACE has already started to “spread”:

- Turkey [MÜDEK] has been included in January 2009.



## The current EUR-ACE SPREAD project (2008-10) aims specifically at four more countries:

- Italy *[Italian partner: CoPI]*
- Lithuania *[Lithuanian partner: SKVC]*
- Romania *[Romanian partner: ARACIS]*
- Switzerland *[partner: SUPSI, supported by an ad-hoc grant of the Swiss Government]*

But other countries are not excluded from current efforts...

Let us quote some examples:

## Promoting spread of EUR-ACE in “other countries”:

### ■ Netherlands and Flanders

NVAO (Accreditation Organisation of Netherlands and Flanders: *Flanders is the Flemish speaking Belgium*) has formally submitted to ENAEE in March 2010 the Application Form for the authorisation to award the EUR-ACE® Label.

The process should be concluded in a few months..

### ■ Belgium (French speaking)

CTI has been asked to accredit programmes in French-language Belgian HEIs and will award them also the EUR-ACE label (that they have already granted to a programme of the two-lingual Belgian Royal Military Academy)

## Promoting spread of EUR-ACE in “other countries”:

### ■ Poland

On 19<sup>th</sup> March 2010 the Polish “Accreditation Committee for Technical Higher Education Institutions” (KAUT) has decided they want to award the EUR-ACE label. Their Application Form to be authorized is expected to be submitted soon.

### ■ Kazakhstan

This is the latest (47<sup>th</sup>) country admitted into the Bologna process.

RAEE, a EUR-ACE-accredited Agency, has accredited several Kazakh programmes and will award them the EUR-ACE label.



## Part IV. Synergies, Cooperation and Networking





In the line of cooperation and networking:

The latest EU-supported 3-year project, coordinated by the University of Florence has started in November 2009:



**EUGENE** (EUropean and Global ENgineering Education)

with the objective of “improving the impact of European Engineering Education (EE) on competitiveness, innovation and socio-economic growth in a global context”.

A whole “Activity Line” of EUGENE, lead by ENAEE, is aimed at “improving trans-national mobility of engineering students, graduates and professionals, also through contacts and synergies with the International Engineering Alliance and the Washington Accord”. It is therefore expected that **EUGENE** will contribute to further strengthening and spreading of **EUR-ACE**.

[www.unifi.it/eugene](http://www.unifi.it/eugene)



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## Summing up:

ENAAEE is creating a two-tier system of **European-accredited engineering programmes**.



Variants to accommodate specific national needs and/or additional qualifications (e.g. for specialized degrees or specific profiles) are not excluded.

Indeed, the EUR-ACE label is an “addition” to a national accreditation, and can be regarded as a quality guarantee of an accepted common basis to programmes providing an entry route to the engineering profession.

The experience of national accreditation bodies, old-established in several European countries, is fully exploited.

This approach and the essential distinction between FCD and SCD make the EUR-ACE system at the same time flexible and simple and should allow it to be spread world-wide.

Third Cycle (Doctoral) and Continuing Education are not (yet) considered.

The 2nd International Conference: Institutional Strategic Quality Management

ISQM2010, 14-16 October 2010

Any Higher Education Institution throughout Europe and the world that want the EUR-ACE FC or SC Label for one or more of their engineering programmes although no EUR-ACE Agency exists in their country, can apply through one of the EUR-ACE Agencies, following its procedure.

Alternatively, it can contact directly the ENAEE Secretariat, that will direct them to one of the Agency.



**For up-to-date information, application forms, etc., visit**

**[www.enaee.eu](http://www.enaee.eu) or [www.eur-ace.eu](http://www.eur-ace.eu)**





# Thank you!

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