The European Network for the Accreditation of Engineering Education (ENAEE) and the EUR-ACE Label

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Background

Engineering is a “global” profession; hence transnational recognition is essential.

In 1989 eight National Engineer’s Professional Organisations started what is known as the

Washington Accord

In the Washington Accord –

“qualifications accredited or recognised by other signatories are recognised by each signatory as being substantially equivalent to accredited or recognised qualifications within its own jurisdiction”

Background

- No similar initiative existed in Europe prior to 2004
- European engineering graduates encountered significant difficulties in the recognition of their academic and professional qualifications and consequently with trans-national mobility.
- The lack of an accepted European accreditation system of engineering education was the basic motivation for the EU-funded EUR-ACE project, which commenced in 2004.
- To implement the EUR-ACE system, the ENAEE was founded in February 2006 by 14 concerned associations.

Short history of development of engineering accreditation in Europe

2004	EUR-ACE Project
2006	Foundation of ENAEE
2006	EUR-ACE Implementation Project
2007	6 Agencies authorised
2008	First Review Process completed
2008	EUR-ACE Spread Project
2009	7th Agency authorised
2012	8th and 9th Agencies authorised

ENAEE Authorised Engineering Accreditation Agencies

2006	France	CTI
	Germany	ASIIN
	Ireland	Engineers Ireland
	Portugal	Ordem dos Engenheiros
	Russia	RAEE
	UK	Engineering Council UK
2007	Turkey	MUDEK
2012	Italy	QUACING
	Romania	ARACIS

Organisational Structure of ENAEE

- Administrative Council: 7 members
  Policy making body; Implementation and Dissemination
- General Assembly (GA): 19 representatives of member organisations
  Makes decisions on recommendation of AC
- Label Committee (LC): representatives of each authorised agency (currently 9)
  Carries out authorisation procedure

Accreditation and ENAEE

The EUR-ACE Label is awarded to engineering degree programmes at First Cycle (Bachelor) and Second Cycle (Master) Levels and is listed by the European Commission among the

"European Quality Labels"

The awarding of the Label is managed by ENAEE, which is a network of 19 Engineering Associations (Engineering Education Societies, Engineering Accreditation Agencies and Engineering Professional Associations)

Accreditation and ENAEE

Programme accreditation and institutional accreditation

- Institutional accreditation assesses institutions as a whole
- Programme accreditation assesses the quality of a specific programme
- Programme accreditation is complementary to institutional accreditation

Accreditation refers to education only, not to the whole formation.

EUR-ACE focuses on “programme accreditation”, but to qualify it better, it could be called “pre-professional accreditation”

Accreditation and ENAEE

What is accreditation for ENAEE?

Accreditation of an Engineering Education programme is the result of a process to ensure the suitability of a programme as the 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, which include academics and professionals

Thus the accreditation of degrees guarantees the "quality" and "relevance" at all levels

Accreditation and ENAEE

The award of the EUR-ACE Label

- Ensures that a programme has the standards required for its graduates to acquire the necessary educational qualifications to enter the engineering profession
- Is the result of a process to ensure the educational quality of the programme

EUR-ACE Framework Standards

(The EUR-ACE Framework Standards have been complied as a synthesis of existing national standards)

Reasons for their establishment

- To implement a European system of programme accreditation for engineering degrees
- To encompass and be valid for all branches of engineering and all profiles
- To be applicable in existing accreditation systems in use in Europe, but to be able to accommodate national differences of educational and accreditation practice

EUR-ACE Framework Standards

Structure

1. Outcome based – the Standards specify the Programme/Learning Outcomes to be satisfied for Accreditation (Thus they describe the abilities that the graduate must achieve but not how they should be taught)
2. Criteria and Requirements for programme assessment and accreditation
3. Procedures for programme assessment and accreditation

EUR-ACE Framework Standards

Six Categories of Learning Outcomes

- Knowledge and Understanding
- Engineering Analysis
- Engineering Design
- Investigations
- Engineering practice
- Transferable skills

For each category, outcome criteria for First and Second Cycle programmes' graduates have been established

Example of Learning Outcomes

Category: Engineering Analysis

First Cycle graduates should have –

- The ability to apply their knowledge and understanding to identify, formulate and solve engineering problems using established methods
- The ability to apply their knowledge and understanding to analysing engineering products, processes and methods
- The ability to select and apply relevant analytic and modelling methods

Example of Learning Outcomes

Category: Engineering Analysis

Second Cycle graduates should have –

- The ability to solve problems that are unfamiliar, incompletely defined and/or having competing specifications
- The ability to formulate and solve problems in new and emerging areas of their specialisation
- The ability to use their knowledge and understanding to conceptualise engineering models, systems and processes
- The ability to apply innovative methods in problem solving

EUR-ACE Framework Standards

Criteria for Programme Assessment

Quality Assurance aspects to be looked at during the assessment process

- Needs, Objectives, Outcomes
- Educational Process
- Resources and Partnerships
- Assessment of the Educational Process
- Management System

EUR-ACE Framework Standards

Procedures for Programme Assessment

This is a description of the steps to be taken during the assessment process – 2 documents

- Guidelines for the procedure of the assessment
- Guidelines for the decision making process

Decentralised Approach

- Programme fulfilling the Learning Outcomes can be awarded the EUR-ACE Label
- Award of the EUR-ACE Label is given by the authorised agency
- In some countries, one accreditation process gives two or more labels (or awards)

The EUR-ACE Procedure

Authorisation procedure for the accreditation process

- Download the application form from the website: www.enaee.eu
- Complete form to demonstrate compliance with the ENAEE Standards and Guidelines and with the EUR-ACE Framework Standards
- ENAEE sets up review team

The EUR-ACE Procedure

Authorisation procedure for accreditation agencies

- Review team checks criteria and procedure of the accreditation agency against ENAEE Standards and Guidelines and against EUR-ACE Framework Standards
- Review team participates in on-site visits of the agency
- Authorisation is for a period of 5 years

(Details are available at www.enaee.eu)

EUR-ACE Accreditation Benefits for HEIs

Adds status through

- Additional certification of quality of education
- Means of promotion: programme meets academic and professional standards
- Assurance that the programme meets the quality standards set by the engineering profession (International Peer Recognition)
- Benchmarked against other European programmes
- Reliable information on quality of FC programmes for admission to SC
- Incentives for students to choose EUR-ACE Label programmes
- Enhances focus on engineering education

EUR-ACE Accreditation Benefits for Students

- Assurance that EUR-ACE labelled programme meets high European and International standards
- Facilitates application to EUR-ACE Masters programmes in others HEIs
- Additional quality label recognised by employers in Europe
- Internationally recognised degree as meeting professional standards
- Regulatory bodies accept labelled programmes as meeting requirements for becoming a Charted Engineer
- Maximises career opportunities both at home and abroad

EUR-ACE Accreditation Benefits for employers

Successful completion of a EUR-ACE labelled programmes ensures

- Competence of graduates – candidate's knowledge, understanding and practical capabilities meet international standards
- Reliable information on quality of the degree programme of the candidate, without having to check all the details
- Relevance of programme for the profession
- Complement to the Diploma Supplement

EUR-ACE Accreditation Benefits for Agencies

(Accreditation agencies and professional engineering organisations)

- Benchmarking against international standards
- Offering additional quality label to customers
- Certification of the quality of the accreditation agency
- Access to international expertise and developments, keeping the institution at the forefront of international developments
- Identifies and encourages best practice through mutual peer monitoring and information exchange
- Integration into European Network of engineering professionals
- FEANI automatically includes the EUR-ACE accredited programmes in its index of European recognised engineering programmes

Why Choose the EUR-ACE Label?

- Builds on the broadest stakeholder involvement with a view to involve the whole professional community
- Based on self-assessment and peer review
- Is a European accreditation scheme: carried out through agencies across Europe
- Incorporates existing good practices and valid quality standards

ENAEE's Main Objectives

- Set up by European stakeholders concerned with the quality of engineering educational programmes
- Define a single set of standards and procedures for the accreditation of engineering programmes
- Implement gradually a network of accreditation agencies using the EUR-ACE Standards and Procedures
- Promote and coordinate an increasing number of national accreditation agencies awarding the EUR-ACE label
- Leading to pan-European recognition of national accreditations

ENAEE – Goals

- To build confidence in systems of accreditation of engineering degree programmes in Europe
- To promote the implementation of best accreditation practice for engineering education systems in Europe
- To facilitate European transnational and worldwide recognition and mobility of engineering graduates and professionals

ENAEE - Activities

- Facilitating the free exchange of information
- Promoting an effective communications channel for those concerned with education and professional standards in engineering throughout the EHEA
- Providing information on topics and issues connected with educational and professional standards
- Participating in the creation and ultimately the administration of a European accreditation framework for engineering education programmes