



## High Level Qualifications Frameworks and the Eur-ACE Framework Standards - Do They Fit Together?

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Workshop on Overarching and Sectoral Frameworks  
at the European and Global Scale

ENAAE - European Network for Accreditation of Engineering Education,  
22 January 2009, Brussels, Belgium

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### To say what I am going to say...

Qualifications Frameworks -  
Do they fit together?

- ① **Setting the stage - new context and role for Higher Education Institutions**
  - ① What needs to be understood
  - ① From Bologna to London... and beyond
- ② **Qualifications Frameworks and Quality Assurance**
  - ② Overview
  - ② Meta frameworks and Sectoral Frameworks
- ③ **Degree Structures in Europe and Qualifications Frameworks**
  - ③ How do they articulate between each other?
- ④ **The complementary role of Syllabus level descriptors**
- ⑤ **Concluding Notes**



## Setting the Stage... New Context and Role for HEI

### I - The OECD and the future of Higher Education Institutions

“The University is no longer a quiet place to teach and do scholarly work at a measured pace and contemplate the universe as in centuries past.

**It is a big, complex, demanding, competitive business, requiring large-scale ongoing investment”<sup>1</sup>**

ON THE EDGE: SECURING A SUSTAINABLE FUTURE FOR HIGHER EDUCATION,  
Report of the OECD/IMHE-HEFCE Project on Financial Management and Governance of Higher Education Institutions (Education Working Paper No. 7), 2007

<sup>1</sup> Malcolm Skilbeck (2001), *The University Challenged . A Review of International Trends and Issues with Particular Reference to Ireland, The Higher Education Authority, Dublin.*



## Setting the Stage... New Context and Role for HEI

### II - The European Commission: University and Society

EC, *The Role of Universities in the Europe of Knowledge*, 2003

“After remaining a comparatively **isolated universe** for a very long period, both in relation to society and to the rest of the world, with funding guaranteed and a status protected by respect for their autonomy,

**European universities have gone through the second half of the 20<sup>th</sup>-century without really calling into question the role or the nature of what they should be contributing to society”**



## Setting the Stage... New Context and Role for HEI

### III - EUA: New methods, new Publics

#### For the University...

*In Trends V Report, EUA, 2007, p. 8*

“There is an increasing awareness that the most significant legacy of the [Bologna] process will be a change of educational paradigm across the continent. Institutions are slowly moving away from a system of teacher-driven provision, and towards a student-centered concept of higher education.

Thus the reforms are laying the foundations for a system adapted to respond to a growing variety of student needs.

Institutions and their staff are still at the early stages of realizing the potential of reforms for these purposes



## Setting the Stage... New Context and Role for HEI

### IV- Relevance of Sectoral Frameworks

☞ **Excerpt of the Document “BFUG - Bologna Beyond 2010” (in preparation)**

“... While learning outcomes have been *generically* defined for the degree structure in the context of the Dublin descriptors, the key point is to develop *subject specific* descriptors for knowledge, skills and competences.”

## Setting the Stage... New Context and Role for HEI

### V - Bologna as one dimension of an European Strategy for Development (I)

☞ **The Bologna 2020 Ghent Conference, 19-20 May, 2008**

**Professor Marek Kwiek, Rapporteur**

Center for Public Policy, Poznan University, Poland

- ✓ **The Bologna Process should not be viewed in isolation from global processes** - it is an example of a response to global integration, massification of HE and the accompanying financial resource challenge.
- ✓ **Also it should not be viewed in isolation from European societies and economies.**
- ✓ **Tough times are coming - but change is always tough!**
- ✓ **Things are going to change fundamentally.**

## The Bologna Process

### What needs to be understood

- ☞ **Understand the Bologna Process as one of the dimensions of the prevailing strategy for European development - based on KNOWLEDGE AND TRANSNATIONAL CO-OPERATION**
- ☞ **Understand the Bologna Process as having two main groups of objectives, naturally interlinked**
  - ✓ **Objectives of political, social, and economical nature nature**
  - ✓ **Objectives of a dominant academic nature**
- ☞ **Understand that indeed these objectives mean, in many countries, a major reform (... a small revolution...) in Higher Education and in Society**

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Qualifications Frameworks -  
Do they fit together?

## So, The Bologna Process Revisited...

### I - National Reforms in the European context

The diagram consists of three nested ovals. The outermost oval is light blue and labeled 'European Model for Development'. Inside it is a medium blue oval labeled 'The Bologna Process and the Creation of the European Area of Knowledge'. The innermost oval is yellow and labeled 'Reform of the National Systems of Higher Education'. A double-headed red arrow connects the yellow oval to the medium blue oval, indicating a reciprocal relationship between national reforms and the Bologna process.

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## From Bologna ... to London... and beyond...

### I - Key Issues expressed in the London Communiqué (2007)

- ☞ **Mobility** - a central issue, far from a success...
- ☞ **Curricular reform** -
  - ✓ Degree System and Teaching / Learning Paradigms
    - Stabilising the closely related concepts of Learning Outcomes and Credit System
  - ✓ Qualifications Frameworks - National Qualifications Frameworks
  - ✓ Quality Assurance - implementing the Register
  - ✓ Recognition of degrees and study periods
  - ✓ Lifelong Learning
- ☞ **Social issues** - Employability, social dimension...
- ☞ **Global dimension** - Attractiveness

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## From Bologna ... to London... and beyond...

### II - Key Issues deriving from the London Communiqué

- ☞ **National Qualifications Frameworks**
  - ✓ Compatible with European Frameworks
  - ✓ Necessarily compatible with the European Directive on Recognition of Professional Qualifications
  - ✓ Compatible with Sectoral Frameworks approved at European level
  - ✓ Fine tuned at Specialty or Discipline level
- ☞ **Quality Assurance - The European Register**
  - ✓ Should care for recognised procedures at European Level
- ☞ **The Substance - Contents and Methods**
  - ✓ Mobilizing the Academic Community for changing the Substance

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## From Bologna ... to London... and beyond...

### III - After all, where are we now?

- ☞ **The Bologna Process is now accepted - and not only in Europe...**
  - ✓ We do not discuss anymore if we should carry on... we discuss how far have we been able to get...
- ☞ **We should recognize the mountain of work ahead**
  - ✓ The design is there... the structure is almost finished
  - ✓ The practice, the substance is largely still missing...
- ☞ **Speaking of structures, objectives and methods - changes of paradigm are extremely difficult to achieve**
  - ✓ Developing and implementing National QF
  - ✓ Developing student centred learning
  - ✓ Implementing the Quality Assurance System
  - ✓ Promoting employability for first cycles
  - ✓ ...

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## From Bologna ... to London... and beyond... V - Still the same keywords...

- ☞ **MOBILITY, COOPERATION, TRUST, ACCREDITATION**
- ✓ **MOBILITY AND COOPERATION** require professional recognition
- ✓ **Professional recognition** requires **TRUST**
- ✓ **TRUST** requires transparency and readability of structures and professional qualifications
- ☞ **All is achieved through:**
  - ✓ **COMPARABLE QUALIFICATIONS FRAMEWORKS**
  - And**
  - ✓ **ACCEPTED QUALITY ASSURANCE PROCEDURES**

## To say what I am going to say...

- ① **Setting the stage new context and role for HEI**
  - ① What needs to be understood
  - ① From Bologna to London... and beyond
- ② **Qualifications Frameworks and Quality Assurance**
  - ② **Overview**
  - ② **Meta frameworks and Sectoral Frameworks**
- ③ **Degree Structures in Europe and Qualifications Frameworks**
  - ③ How do they articulate between each other?
- ④ **The complementary role of Syllabus level descriptors**
- ⑤ **Concluding Notes**

## Qualifications Frameworks... *in strictus sensus*

### I - What are Qualifications Frameworks?

- ☞ In **Strictus Sensus**, a **Qualifications Framework (QF)** is a systematic description of an education system, expressing the expected learning outcomes for a given qualification, that is **expressing what a learner is expected to know, understand and be able to do after successful completion of a process of learning.**
- ☞ A QF should
  - ✓ describe all the qualifications in a higher education system, or in an entire education system
  - ✓ show how the various qualifications in the education or higher education system articulate, and
  - ✓ Show how learners can move between qualifications.
- ☞ QF thus focus mainly on outcomes and on the several learning paths, including those of lifelong learning, that may lead to a given qualification.

## Qualifications Framework

### II - Requirements for National QF definition

- ☞ A NQF should
  - ✓ describe all the qualifications in a higher education system, or in an entire education system
  - ✓ show how the various qualifications in the education or higher education system articulate
  - ✓ Show how learners can move between qualifications.
  - ✓ Define areas of competences
  - ✓ Define ways of characterizing those competences
    - **Academic dimensions**
  - ✓ Define a system of grading such dimensions
- ☞ We should understand that a complete QF may involve up to 4 levels of descriptors in course documentation and in national, sectoral and European qualifications frameworks.



## Qualifications Frameworks... *latus sensus*

### III - The different layers - from general to specific...

- ☞ QF-EHEA or EQF-LLL - High Level Descriptors
  - ✓ Characterize high level groups of qualifications
  - ✓ Linked to the all important Directive for Professional Recognition
- ☞ Sectoral Descriptors
  - ✓ Ideally resulting from wide transnational agreements
  - ✓ The TUNING methodology
  - ✓ In Engineering - TU-3 descriptors, EUR-ACE, CDIO, ABET...
- ☞ Specific Descriptors
  - ✓ For each discipline, thus depending on the sector
  - ✓ Including, if applicable, the identification of professional activities for which the organizations candidates are to be prepared
- ☞ Contents - core curricula - Education, Accreditation...
  - ✓ Learning Outcomes have to earn the trust of society through the specialists opinion, link to Contents and Workload
  - ✓ Significant work of European Working Parties...

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## Meta Frameworks and the Directive for Recognition of Professional Qualifications

- ☞ Three major documents at High Level
  - ✓ The QF-EHEA -Qualifications Framework for the European Higher Education Area
    - Adopted in Bergen 2005, within the Bologna Process
  - ✓ The EQF-LLL - European Qualifications Framework for Lifelong Learning
    - Adopted bt the EC - approved on April 23, 2008 by the Parliament and the Council of the European Union
  - ✓ The Directive for Recognition of Professional Qualifications, approved by the European Parliament and by the Council on September 7, 2005
    - National laws should have been passed in all EC Countries till the end of 2007

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### Three major documents

#### I - QF-EHEA - Qualifications Framework for the European Higher Education Area

- ☞ A degree structure with three main cycles and a short cycle within or linked to the First Cycle
- ☞ Adopts the Dublin Descriptors developed by the Joint Quality as the cycle descriptors, characterizing levels to be attained in
  - *knowledge and understanding*
  - *applying knowledge and understanding*
  - *making judgements*
  - *communication*
  - *Learning skills*
- ☞ These are high level broad descriptors that will have to lead to more specific descriptors in each area or specialty within a given area



### Three major documents

#### II - EQF-LLL - The European Qualifications Framework for Lifelong Learning

- ☞ Approved by the Parliament and the Council of the European Union on April 23, 2008
- ☞ Adopts 8 levels of qualifications characterized in terms of
  - *Knowledge*
  - *Skills*
  - *Competences*
- ☞ Adopts common principles for Quality Assurance in Higher Education and Vocational Education and Training in the context of the European Qualifications Frameworks
- ☞ Establishes a link of compatibility with the Framework for Qualifications of the European Higher Education Area

## Three major documents

### III - The Directive for Recognition of Professional Qualifications (September 2005) (I)

- ☞ Reaffirms previous Directive, accepting 7 professional areas with recognized specifications, with the right to specific annexes
- ☞ Engineering (as Law) is out of such group
  - ✓ For these - three main levels are recognized as associated to professional qualifications (the all important Article 11)
- ☞ Right now, the European Database of regulated professions of the EU Member states, Iceland, Norway, Lichtenstein and Switzerland is being filled in and available for consultation at [http://ec.europa.eu/internal\\_market/qualifications/regprof/index.cfm](http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm)

## Three major documents

### III - The Directive for Recognition of Professional Qualifications (II)

- ☞ Article 11 - Five levels of qualification particularly relevant for professions that are out of the Annex
  - ✓ 2 levels requiring secondary education, general or vocational
  - ✓ 1 level, requiring short post-secondary education, not necessarily at higher education level, plus professional training
  - ✓ 2 levels of post-secondary education at higher education level, plus adequate professional training

## Three major documents

### III - The Directive for Recognition of Professional Qualifications (III)

- ☞ Art. 11, e) - higher level  
...completed a post-secondary course of at least four years' duration...at a university or establishment of higher education...and where appropriate completed professional training...
- ☞ Art. 11, d) - intermediate level  
...training at post-secondary level of at least three and not more than four years' duration...at a university or establishment of higher education...as well as the professional training that may be required...
- ☞ Art. 11, c) - lower level  
...training at post-secondary level other than that referred in d) and e) of a duration of at least one year...as well as the professional training which may be required in addition to that post-secondary course...

## Qualifications Frameworks and the Directive A striking coincidence or concerted action?

- ☞ The QF-EHEA, the EQF-LLL and the Directive point out in the same direction
  - ✓ Recognition of different qualification levels linked to formal education
- ☞ They fit remarkably well in the world of engineering and the offer of engineering education in Europe
- ☞ They should obviously be translated into our Quality Assurance Systems

## Major Sectoral Frameworks

- ☞ Resulting mainly from mapping meta frameworks down to sectors, or from group initiatives,
- ☞ Aiming mainly at serving as reference for development of programmes and as reference for quality assurance systems
  - ✓ The TUNING Methodology for implementing the two main cycles of the QF-EHEA
  - ✓ The E4 Project, bringing TUNING to Engineering
  - ✓ The TU-3 Criteria for Academic BA-MA Curricula
  - ✓ **Our EUR-ACE System**
  - ✓ The CDIO (Conceive -Design-Implement-Operate) Initiative
  - ✓ The ABET Accreditation System
  - ✓ ... not to speak of the frameworks available in several European countries, well before the Bologna Reforms

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## The EUR-ACE System (II) Standards and Procedures

- ☞ National Agencies to be granted the authority for awarding EUR-ACE labels should have procedures that comply with or are in substantial conformity with a set of standards and procedures for accrediting engineering programmes constituted essentially by
  - Guidelines for Programme Assessment and Accreditation
    - ✓ Setting criteria, requirement and questions to be addressed for general items, concerned with institutional and programme specific aspects
  - Programme outcomes for the accreditation
    - ✓ Organized in 6 main areas of competences
    - ✓ Distinguishing between First and Second Cycle levels

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## The EUR-ACE System

### (II) Guidelines for Programme Assessment and Accreditation

- ☞ Guidelines for Programme Assessment, requiring clear information and evidence on 14 criteria, grouped in the following items:
  - ✓ Needs, objectives and outcomes
  - ✓ Educational process
  - ✓ Resources
  - ✓ Assessment of the educational process
  - ✓ Management system
- ☞ In this context, the Guidelines propose 'the criteria to be assessed' and the associated 'requirements' in the form of questions, valid for both FC and SC programmes, that should be addressed when assessing an engineering programme on education



## The EUR-ACE System

### (IV) Programme Outcomes for the Accreditation

- ☞ Programme Outcomes that must be satisfied
  - 6 areas of competences are defined
    - ✓ Knowledge and Understanding
    - ✓ Engineering Analysis
    - ✓ Engineering Design
    - ✓ Investigations
    - ✓ Engineering Practice
    - ✓ Transferable (personal) Skills
  - 21 expected outcomes for First Cycle Degrees
  - 19 expected outcomes for Second Cycle Degrees

## The EUR-ACE System (V) Standards Characterization

- ☞ The Standards developed distinguish between First and Second Cycle programmes
  - BUT, are applicable also to “integrated programmes”, i.e. programmes that lead directly to a Second Cycle degree
- ☞ The Standards DO NOT distinguish branches or profiles, and as such:
  - ✓ Have only one set of criteria defined for each level
  - ✓ Must be complemented by descriptors at discipline/syllabus level
    - The VDI-GVC Recommendation for Process Engineering is a case-study

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## Academic Degree Structures in Engineering and Qualifications Frameworks How do they relate and articulate?

### ☞ A relevant set of questions:

- Which Degree Structures for the profession in the European Countries?
- How do Meta and Sectoral Frameworks relate with the existing Degree Structures?
- How do Sectoral Frameworks articulate with the Meta Frameworks?
- What is the role of Syllabus Level Descriptors?
  - ✓ To which extent should we have guidelines or recommendations at this level?

## Academic Degree Structures in Engineering I - Qualification Levels and Education Profiles

- ☞ As we all know... There are different degree structures active in Europe...
- ☞ Two levels of qualifications associated to those levels approved in the Directive of Professional Recognition and recognized in the QF-EHEA and the EQF-LLL
- ☞ Two main profiles of education, more theoretically, or more vocationally oriented
- ☞ Offer of integrated studies - long cycles of a more theoretical nature
  - ✓ An issue to discuss further...



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### Qualification Levels of Academic Degrees in Engineering and the existing Frameworks (including the Directive)

Bologna QF-EHEA CYCLES	European Union EQF-LLL LEVELS	EUR-ACE	EU-Directive of Professional Recognition Art. 11 - LEVELS
Third Cycles	Level 8		
Second Cycles	Level 7	Second Cycles	Art 11° e)
First Cycles	Level 6	First Cycles	Art. 11° d)
Short Cycles Linked to or Within First Cycles	Level 5		Art. 11° c)

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Qualifications Frameworks -  
Do they fit together?

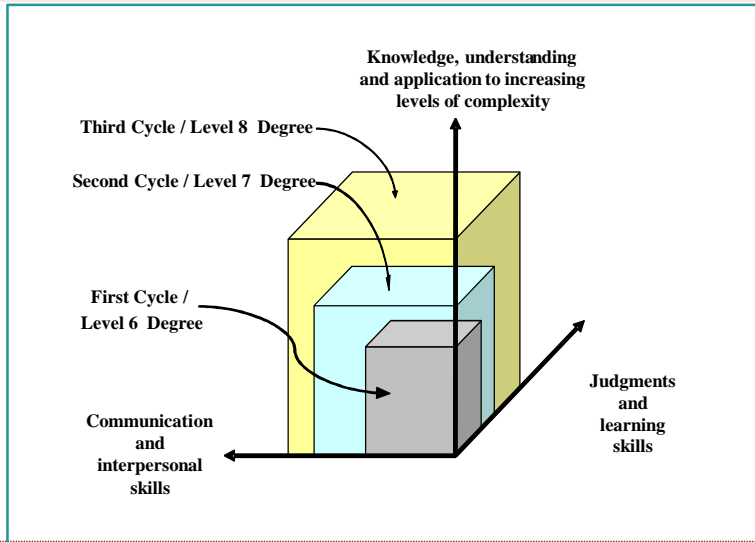
### Academic Degree Structures in Engineering

#### II - Understanding fundamental differences between levels of qualifications

- ☞ Programme Outcomes must be evaluated in relation with the level of intervention in the Engineering Activity
  - Social responsibility (namely, signing projects)
  - Capacity to tackle large, complex problems
  - Capacity to adapt to new jobs of high complexity and responsibility
  - Capacity for effective activity in the production line
  - .....
- ☞ For the different subsets of Programme Outcomes, and for the First and Second Cycle Degrees in Engineering, the differences in outcomes are mostly related with
  - scope, depth and breadth
- ☞ For the Master degree, developing the right **ATTITUDE** to use knowledge or skills in a given situation is a major outcome

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## Academic Degree Structures in Engineering IV - Routes for the different qualification levels (I)

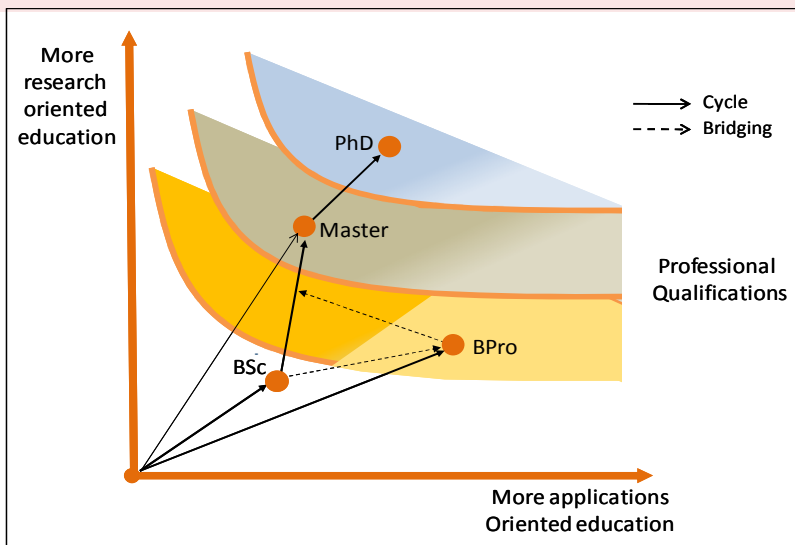


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## Academic Degree Structures in Engineering V - Routes for the different qualification levels (II)



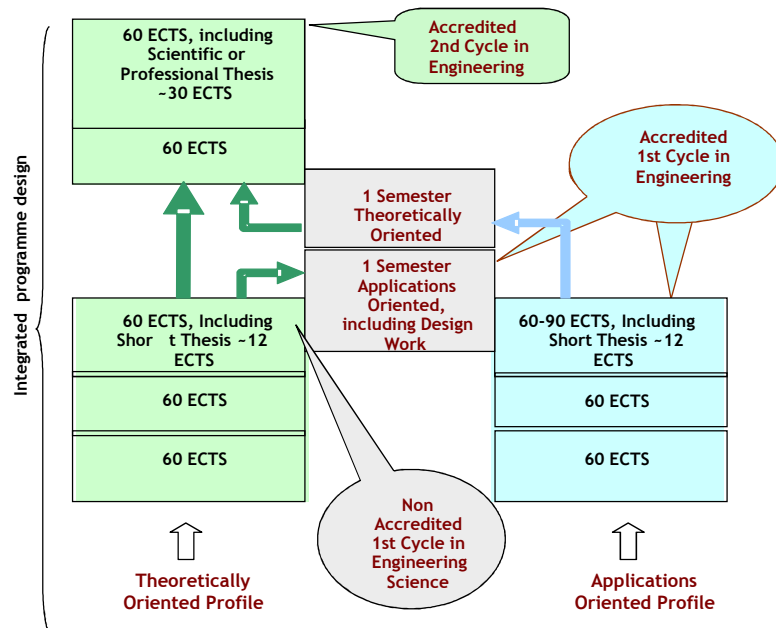
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## Academic Degree Structures in Engineering VI - Two Final Relevant Notes

- ☞ In the engineering profession, qualifications for a significant number of activities require accumulated long training at higher education level.
  - In most countries this means the equivalent to 300 ECTS, but it is known that this is not the generalized situation.
- ☞ What is in discussion is whether such education should be achieved through long cycle degrees, or if it can be achieved through accumulated two-cycle studies.
  - A political issue, of educational policies
  - In fact, most European countries are adopting the two-cycle system, independently of the qualifications associated to First Cycle degrees.



## EUR-ACE and the META FRAMEWORKS

### How do they relate?

- ☞ **The Standards adopted by EUR-ACE:**
  - Are consistent with the QF-EHEA
  - Can constitute the basis for the periodic review of programmes and awards included in the Standards and Guidelines for Quality Assurance in the EHEA
  - Distinguish between **First and Second Cycle** programmes
    - ✓ **BUT**, are applicable also to “**integrated programmes**”, i.e. programmes that lead directly to a **Second Cycle degree**
- ☞ **We have to examine the type of expected outcomes proposed and see how they are in substantial conformity with both the expected outcomes approved by the QF-EHEA and the EQF-LLL**

## EUR-ACE and the META FRAMEWORKS

### I - Identification of Outcomes (I)

Table 1 - Clustering of qualifications descriptors in different frameworks

	Bologna, QF-EHEA	EU, EQF-LLL	EUR-ACE
A.	Knowledge and understanding	1. Knowledge	I. Knowledge and understanding
B.	Applying knowledge and understanding	2. Skills	II. Engineering analysis
C.	Making Judgments	3. Competences	III. Engineering design
D.	Communications skills		IV. Investigations
E.	Learning skills		V. Engineering practice
			VI. Transferable skills

## EUR-ACE and the META FRAMEWORKS

### I - Identification of Outcomes (II)

Just an example of detailed descriptors (see support paper)

**Table 4 - Comparison of descriptors -  
QF-EHEA First Cycles, EQF-LLL - Level 6 and EUR-ACE First Cycles**

Bologna, QF-EHEA, First Cycles	EU, EQF-LLL, Level 6	EUR-ACE, First Cycles
<p><b>FC-A.</b> Have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study</p> <p><b>FC-B.</b> Can apply their knowledge and</p>	<p><b>L6.1.</b> Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles;</p> <p><b>L6.2.</b> Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialized field of work or study</p>	<p><b>FC-I.1.</b> Knowledge and understanding of the scientific and mathematical principles underlying their branch of engineering;</p> <p><b>FC-I.2.</b> A systematic understanding of the key aspects and concepts of their branch of engineering;</p> <p><b>FC-I.3.</b> Coherent knowledge of their branch of engineering including some at the forefront of the branch;</p> <p>.....</p>

## EUR-ACE and the META FRAMEWORKS

### II - Relating Outcomes for First Cycles, Level 6

		EUR-ACE - First Cycles																					
		I.1	I.2	I.3	I.4	II.1	II.2	II.3	III.1	III.2	IV.1	IV.2	IV.3	V.1	V.2	V.3	V.4	VI.1	VI.2	VI.3	VI.4	VI.5	
QF - EHEA	FC-A	■	■	■	■																		
	FC-B					■	■	■	■	■	■	■	■	■	■	■	■				■	■	
	FC-C					■		■	■	■	■	■	■				■			■			
	FC-D																		■	■	■		
	FC-E														■	■	■						■
EQF - LLL	L6.1	■	■	■	■											■	■	■					
	L6.2		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
	L6.3.1																	■			■		
	L6.3.2																		■		■		■

## EUR-ACE and the META FRAMEWORKS

### II - Relating Outcomes for Second Cycles, Level 7

Qualifications Frameworks -  
 Do they fit together?

		EUR-ACE - Second Cycles																			
		I.1	I.2	II.1	II.2	II.3	II.4	III.1	III.2	III.3	IV.1	IV.2	IV.3	IV.4	V.1	V.2	V.3	VI.1	VI.2	VI.3	
QF - EHEA	SC-A	■	■																		
	SC-B			■	■	■	■	■	■						■	■					
	SC-C					■	■	■	■	■					■	■	■				
	SC-D																		■	■	■
	SC-E				■							■	■	■	■						
EQF-LLL	L7.1.1	■	■																		
	L7.1.2	■	■																		
	L7.2			■	■	■	■	■	■	■	■	■	■	■							
	L7.3.1														■			■	■		
	L7.3.2																■		■	■	■

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## To say what I am going to say...

Qualifications Frameworks -  
 Do they fit together?

- ① **Setting the stage new context and role for HEI**
  - ① What needs to be understood
  - ① From Bologna to London... and beyond
- ② **Qualifications Frameworks and Quality Assurance**
  - ② Overview
  - ② Meta frameworks and Sectoral Frameworks
- ③ **Degree Structures in Europe and Qualifications Frameworks**
  - ③ How do they articulate between each other?
- ④ **The complementary role of Syllabus level descriptors**
- ⑤ **Concluding Notes**

SFA, ENAEE Workshop, Brussels, 22 January 2009

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## Descriptors at Syllabus (contents) level

### I - Recommendations of the WPE-EFCE (I)

- ☞ **WPE-EFCE - Working Party on Education - European Federation of Chemical Engineering**
  
- ✓ See WPE site on <http://www.efce.info/wpe.html>
  
- ✓ Currently with 35 members, representing 23 Countries
  
- ✓ Developed between 2003 and 2005 an exercise of identification of core curriculum for chemical engineering - contents and methodologies

## Descriptors at Syllabus (contents) level

### I - Recommendations of the WPE-EFCE (II)

- ☞ See Recommendation at [http://www.efce.info/Bologna\\_Recommendation.html](http://www.efce.info/Bologna_Recommendation.html)
  
- ☞ These recommendations cover
  - **Learning outcomes**
    - General chemical engineering skills and knowledge
    - Transferable skills
  - **Achieving the learning outcomes**
    - Core curriculum
    - Teaching and learning
    - Industrial experience
    - Review of the educational process
    - Student assessment
  
- ☞ The core curriculum proposed covers only approx. two thirds of a first and a second level degree study



## Descriptors at Syllabus (contents) level

### III - The VDI-GVC Recommendation for Chemical and Processing Engineering (2008) (I)

- ☞ VDI-GVC approved qualifications frames for degree course for Process Engineering, Chemical Engineering and Biomolecular or Bioprocess Engineering
- ☞ Recommendations cover both 'more theoretically oriented' and 'more vocationally oriented' profiles
- ☞ Recommendations apply to consecutive Bachelor's and Master's degree courses



## Descriptors at Syllabus (contents) level

### III - The VDI-GVC Recommendation for Chemical and Processing Engineering (2008) (II)

- ☞ Recommendation is structured in:
  - ✓ Professional profile and qualification framework
  - ✓ Qualifications for admission to the course
  - ✓ Structure of the degree course
  - ✓ Contents of the degree course
- ☞ **The Professional profile and qualification framework is organized in the six main outcomes adopted by EUR-ACE**





## To say what I am going to say...

- ① **Setting the stage new context and role for HEI**
  - ① What needs to be understood
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## I - New context, new role for Higher Education

- ☞ **Two key political, academic and economical issues in the prevailing scenario of the contemporaneous World**
  - ✓ **Transnational co-operation (or 'COOPETITION')**
  - ✓ **Mobility of students and professionals**
- ☞ **Such requires TRUST**
- ☞ **Trust requires accepted transparent qualifications frameworks and quality assurance systems**
- ☞ **Qualifications Frameworks represents a cornerstone of the Bologna Process reforms**
- ☞ **HEI will have to adapt their curricula in line with these driving concepts for co-operation and mobility**

## II - Qualifications Frameworks - From general to specific

- ☞ Meta Qualifications Frameworks are the REFERENCE, BUT NOT THE SOLUTION
  - ☞ The concept of frameworks should be interpreted in *latus sensus*, at three main levels of details:
    - ✓ At the higher level of meta frameworks
    - ✓ At the all relevant sectoral level
    - ✓ At the complementary level of syllabus
  - ☞ Should not forget that
- “... While learning outcomes have been generically defined for the degree structure in the context of the Dublin descriptors, the key point is to develop subject specific descriptors for knowledge, skills and competences.”*

## III - QF and the Engineering Profession

- ☞ The Engineering Profession requires different qualification levels and education profiles that should be guaranteed and identified through transparent Quality Assurance Procedures
- ☞ The framework being developed and put in practice within the Bologna agreements serve adequately the needs of industry and society in general
  - ✓ Short vocational studies, first cycle studies and second cycle studies (stand-alone or integrated) constitute the basis of such framework

## IV - The EUR-ACE Accreditation System (I)

- ☞ EUR-ACE represents a major European proposal for accreditation of engineering education, hence for the global Quality Assurance exercise
- ☞ **The Standards adopted by EUR-ACE:**
  - Are consistent with the QF-EHEA
  - Can constitute the basis for the periodic review of programmes and awards included in the Standards and Guidelines for Quality Assurance in the EHEA
  - Distinguish between **First and Second Cycle** programmes, **BUT**, are applicable also to “**integrated programmes**”, i.e. programmes that lead directly to a Second Cycle degree

## IV - The EUR-ACE Accreditation System (II)

- ☞ Comparing expected outcomes between qualifications frameworks is in some cases somehow of a fuzzy exercise
- YET,
- ☞ The expected outcomes defined within EUR-ACE articulate very well with those identified in the QF-EHEA and well with the related outcomes of the EQF-LLL
  - ☞ EUR-ACE requires complementary descriptors at specialty level, and this is being done by several European organizations, **slowly, but steadily**



**SO, IN ALL...**

**YES,  
EUR-ACE and the Meta Frameworks  
fit together...**



**AND,**

**All that remains is to thank you  
For the attention you cared to pay to the Talk !**